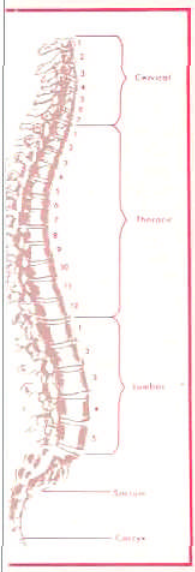
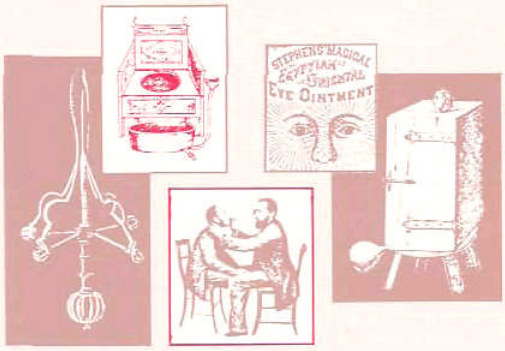
the Skeptical Inquirer

MEDICAL CONTROVERSIES





Chiropractic
Homeopathy

Alternative Therapies
Quackery

Sagan on Skepticism / Alien-Abduction Tales
CSICOP in Pasadena / Geller's Cheating

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the Skeptical Inquirer

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From the Chairman

Is There Intelligent Life on Earth?

Paul Kurtz

IN RECENT MONTHS, we have witnessed a sharp rise in uncorroborated paranormal claims—much to the dismay of skeptics who thought they were making some headway in the case for rationality. The level of credulity seems to have reached new heights.

Shirley MacLaine's gushings have lured millions to join her out on a fantasy limb. Her déjà vu experiences, regressions to earlier lives, precognitive visions, channeling, UFO visitations, and astral projections have been touted far and wide in best-selling books and in a TV miniseries. Large segments of the public are impressed by the "profound spirituality" of her accounts.

Uri Geller is back again after virtually a decade of hibernation, back to moving compass needles by means of hidden magnets and claiming "psychokinesis," and secretly peeking at pictures he has asked various subjects to draw and then claiming his ability to duplicate these drawings is due to "clairvoyance."

Incredibly, Geller secretly met in Washington with Senator Claiborne Pell, chairman of the Senate Foreign Relations Committee, and Congressman Dante Fascell, chairman of the House Foreign Affairs Committee, in an attempt to convince them—with some apparent success—that the Soviet Union is ahead of the United States in the "psychic arms race," even alleging that skeptics are doing the work of the KGB by discouraging such research by the U.S. government. CSICOP's facetious response was to suggest that the United States launch a "skeptics' rapid deployment force"—for, if it is the case, as psychics maintain, that skeptics inhibit real "psychic energy" by their negative vibes, then this could defend the Western democracies against enemy intrusion!

Launched by his publisher to sell his new book, *The Geller Effect,* Geller's recent highly publicized tour included not only the United States, but France —where he appeared virtually unchallenged for two hours on national television—Great Britain, Canada, and other countries.

In addition to these antics, the discredited spiritualism of the nineteenth century has returned as "trance-channeling." Channelers claim to go into

trances and communicate with spirits on the "other side" who reveal information they "could not possibly have known in any other way."

The 35,000-year-old "Ramtha" speaks through a woman known as J. Z. Knight, while other channelers call upon "Dr. Peebles" (William Rainan) or other discarnate spirits, inspiring the adulation of thousands, perhaps millions, of uncritical New Agers. *Channeling* is just a new word for "spiritualism," but today there is not even a pretense of providing hard evidence—no darkened séance rooms, no levitating tables, no ectoplasmic emergences—but simply the claim of instantaneous communication with the spirit world, without any kind of objective verification.

Last, but not least, is the sudden revival of UFOlogy after a period of quiescence. Three major new UFO books have been launched: *Communion: A True Story,* by Whitley Strieber; *Intruders,* by Budd Hopkins; and *Light Years,* by Gary Kinder.

Communion (published by Morrow/Hearst Corporation) has been on the best-seller list for several months. Whitley Strieber, who has written many fictional horror stories, claims to have been in touch with semi-divine extraterrestrial beings. Budd Hopkins's *Intruders* (Random House/Newhouse Publications) is based on the author's "careful analysis" of 125 frightened "abductees" who have been hypnotically regressed under the eye of the artist-sculptor-author (he now claims to have talked to 140 of them). Some of his hysterical women subjects claim that the extraterrestrials are engaged in genetic engineering and have impregnated ova taken from their bodies; and Strieber has intimated that even he has been raped. Random House publisher and CEO Howard Kaminsky was so taken by *Intruders* that he placed a full page ad in the *New York Times* personally recommending the book to "all open-minded people."

The new UFOlogy is based on largely uncorroborated events, often revealed in hypnotic sessions. The paucity of evidence is unnerving: a scar, a lost hour, some bright lights in the sky, and—oops!—someone claims to have been abducted by aliens from outer space. Usually the subject has no memory of the abduction until it is revealed in all its stark terror under hypnosis. In April, I challenged Whitley Strieber (on the Tom Bauerle Show on WGR-Radio in Buffalo) to submit his evidence to us for scientific investigation. He adamantly refused, claiming that CSICOP was "biased."

On "Good Morning America" (ABC-TV, May 19), I asked Budd Hopkins to provide a list of the names of his "abductees," but he said that most of them were "fearful of ridicule" and hence preferred to remain anonymous. However, he promised on the air to promptly send me a list of the "scientists who support" his work. As we go to press, I still have not heard from him.

Hypnosis is an unreliable method for eliciting the truth. As Martin Orne, a leading authority on hypnosis, points out, it may evoke a vast store of unconscious dreams and imaginative fantasies mixed with reality. In many instances, the subject's "memory recall" is influenced by suggestive questions from the hypnotist.

In regard to Hopkins's "abductees," many of those he hypnotized had

read his earlier book *Missing Time* and had been influenced by its extraterrestrial interpretation. CSICOP is of course open to the possibility of intelligent life elsewhere in the universe. We devoted an entire session to this subject at our 1987 conference in Pasadena in April. But *possibility* does not translate into *verified actuality;* nor does it mean that we are being visited by extraterrestrials who engage in kidnapping and rape.

It is clear that the communications industry must shoulder a good deal of the responsibility for the current spate of New Age nonsense. Today's media conglomerates have apparently abandoned all reasonable standards of credibility in an effort to package and sell paranormal claims; they leave little doubt that they are more interested in achieving high profits than in pursuing the quest for truth. At the annual American Booksellers Association convention held in Washington, D.C., over the Memorial Day weekend (May 22-26, 1987), some 52 publishers announced the formation of the New Age Publishers Alliance to promote the sale and distribution of occult, paranormal, and spiritual books.

Today, uncorroborated subjective claims are being heralded as unvarnished truth. In regard to trance-channeling and hypnotic regression, alternative states of consciousness are being offered as special paths to another reality. The quasi-religious character of channeling is strikingly similar to classical mystic trances by means of which seers and prophets allegedly received revelations from gods and angels. In the case of UFO abductions, the entities are science-fiction extraterrestrials, and the analogy to the ancient gods of classical religions who impregnated mortals is unmistakable. Any demand for confirming evidence from true believers falls on deaf ears, often eliciting angry retorts.

UFO pundit Jerome Clark, associate editor of *Fate* magazine and editor of the *International UFO Reporter,* has derided skeptics. He berated me in the *IUR* (January/February 1987) for asking the question: "What is the difference between claiming that you have been raped by an extraterrestrial and claiming that you have seen a pink elephant?" Clark attacks skeptics for being closed-minded and dogmatic, yet he is easily impressed by questionable evidence. Since extraordinary claims require substantial evidence, skeptics have a right to be cautious. Reports of individual subjective experiences are hardly sufficient in themselves. One cannot and should not reject these reports out of hand—prima facie, they are the data given. What is at issue is how to *interpret* such subjective reports. The interpretation that the subjects have been abducted by aliens from outer space is highly suspect. There are viable alternative explanations. One would think that a dash of common sense would dictate some careful checking. But this is apparently foreign to the many UFO buffs who have climbed aboard the media bandwagon.

Skeptics have embarked on an uphill journey. Every time we think we are making progress, a new wave of nonsense overtakes us. Perhaps the "transcendental temptation" (i.e., the tendency for magical thinking) is too strong to be overcome, but can it not be tempered by rationality? To borrow from William Blake's chastisement of the skeptics of his day: We "throw the sand

against the wind, and the wind blows it back again."

I must confess that I have asked myself several times in recent months whether the task that CSICOP and the SKEPTICAL INQUIRER have set for themselves—to raise the level of rationality—is insuperable. Yet I write this just after CSICOP convened its most successful conference, in Pasadena, California, where more than 1,500 people attended one or more sessions and which received considerable worldwide coverage. Moreover, local and national skeptics groups that share CSICOP's aims are now experiencing an unparalleled period of growth. We seem to have crystallized a point of view, and we have strong support from a growing number of scientists, scholars, and other skeptics.

Perhaps the recent surge of untested paranormal claims can be attributed to the effort by the media to sensationalize and exploit them as marketable products. Still, although the scientific search for extraterrestrial life goes on, as it should, given the mass of uncorroborated beliefs, we wonder sometimes to what extent intelligent life exists on Earth!

—*Paul Kurtz*

Controversies in Science and Fringe Science: From Animals and SETI to Quackery and SHC

We asked Lys Ann Shore, who writes frequently for our News and Comment section, to cover the 1987 conference of the Committee for the Scientific Investigation of Claims of the Paranormal in Pasadena. She contributed these reports.

INVESTIGATING controversial claims in both science and fringe-science was the theme of the 1987 CSICOP conference in Pasadena, California. The meeting attracted a curious, attentive, and outspoken audience of 700 to sessions held on Friday and Saturday, April 3 and 4. Although CSICOP is best known for its investigation of paranormal claims, this conference highlighted a complementary aspect of the committee's work—the promotion of science as the best approach to obtaining knowledge about the world.

The issues examined covered astronomy, behavioral science, and medicine, focusing on the search for extraterrestrial intelligence, animal-language research, and controversial medical practices. In addition, concurrent sessions on Saturday afternoon turned to areas of fringe science and the paranormal—astrology, spontaneous human combustion (SHC), and psychic fraud. The high point of the conference came on Friday night, when the keynote address by astronomer Carl Sagan drew a crowd of 1,500 people.

At the opening session on Friday morning, Caltech president Dr. Marvin Goldberger welcomed CSICOP to Pasadena. "Science is a peculiar business," he said, one in which effects and phenomena can appear mysterious until understood. Be skeptical of new phenomena, he advised the audience; subject them to rigorous examination; and keep an open mind.

Paul Kurtz, CSICOP founder and chairman, then briefly explained the meeting's theme, pointing out that a scientific controversy can't be labeled pseudoscientific without examination. "We can't claim to be the judge. The entire scientific community has to do that," he said. Kurtz introduced CSICOP Executive Director Mark Plummer, who emphasized the committee's growing international reach. The SKEPTICAL INQUIRER, he said, now goes to readers in 52 countries; the conference itself drew people "from Vancouver to Mexico and from Boston to Florida." In fact CSICOP can now be seen as a large, international consumer protection organization, Plummer said, "making people skeptical about fraud." He urged, however, that the local skeptics groups exercise caution and prudence in their activities to avoid being seen as vigilante groups.

Saturday's schedule included an optional lunch hosted by magician James Randi. In an informal postprandial talk, interspersed with his well-known escape tricks, Randi spoke "not as a magician but as a founding member of CSICOP." He expressed concern about college students today, who are not always taught how to examine evidence and form a rational decision on the basis of the evidence.

Randi also presented his annual Bent Spoon Awards: a Media Award to ABC-TV for airing "Out on a Limb," Shirley MacLaine's odyssey into mysticism; a Funding Award (for the largest amount of money given for the silliest purposes) to Jerry Collins for his $1.3

CSICOP awardees Gell-Mann and Sagan are congratulated by Kurtz.

million donation to TV evangelist Oral Roberts; and a Performer Award to trance-channeler J. Z. Knight for her portrayal of the 35,000-year-old character "Ramtha."

Mark Plummer then took the stage with a fund-raising appeal, contrasting the fees of paranormalists to those of CSICOP: "A modest fee, for what we offer," Plummer said.

At the CSICOP Awards Banquet, held Saturday evening in the ballroom of the Pasadena Hilton, CSICOP Fellow Carl Sagan received the In Praise of Reason Award. Caltech physicist and Nobel laureate Murray Gell-Mann, also a CSICOP Fellow, was honored with the Frontiers of Science and Technology Award. Responsibility in Journalism awards were presented to three journalists: *Los Angeles Times* editorial writer Lee Dembart, Texas radio talk-show host Ed Busch, and Australian journalist Michael Willesee.

Entertainment at the banquet was provided by comedians/magicians Penn & Teller, who staged a spellbinding show of New Wave magic and comedy, with a little help from "assistant" Murray Gell-Mann.

The Southern California Skeptics served as local support for the conference, facilitating arrangements and providing the many volunteers who helped the conference run smoothly. They also enlivened the banquet with a large self-propelled Mylar UFO that rotated majestically as it sailed about the ballroom, bearing on its side the message, "Phil Klass, Where Are You?"

Keynoter Carl Sagan Takes Up 'Burden of Skepticism'

EVERY AREA of life, from buying a used car to evaluating Star Wars defense schemes, calls for "an exquisite balance between two conflicting needs: the most skeptical scrutiny of all hypotheses . . . and openness to new ideas," said astronomer Carl Sagan in his keynote address. (See p. 38, this issue) Speaking to an attentive and appreciative crowd in the elaborately decorated Auditorium Theater of the Pasadena Center, Sagan ranged from TV commercials to trance-channeling, extraterrestrial intelligence, and Star Wars to show the need for skepticism in daily life. Just as many television commercials betray "a real contempt for the intelligence of the listening audience," so do U.S. arguments for nuclear-weapons testing. There are people in government "who think Americans will buy any English sentence as long as it parses," Sagan said.

Sagan views skepticism and openness to new concepts as complementary attitudes. "If you're only skeptical, no new ideas make it through to you," he pointed out. But if you're altogether open and have no skeptical sense you won't be able to evaluate them. Sagan praised the scientific ethic of rigorous criticism of new ideas.

Why isn't the American public more skeptical of claims by corporations and

Gell-Mann receives Frontiers of Science Award from James Alcock.

government officials—not to mention trance-channelers and other proponents of the paranormal? Part of the answer lies in the cruelty of truth, Sagan believes. "We may find delusion more consoling," for example, when we're offered the opportunity to communicate with loved ones who have died. But when we recognize we're vulnerable because of our own desires, we must be more on guard than ever, Sagan maintained.

But the attraction of illusion isn't solely responsible for people's credulity. "Skepticism is dangerous," Sagan said. "That's exactly its function in my view." Children taught to be skeptical might not stop with TV commercials; instead, they might start challenging accepted ideas and institutions.

Recalling that afternoon's sessions on the search for extraterrestrial intelligence (SETI) and animal language, Sagan pointed out the predispositions that lie as undercurrents to these debates. For example, both issues involve the belief of humans in their own uniqueness—the "anti-Copernican conceit." As soon as we find extraterrestrial intelligence, "the last remnant of that conceit is gone." In evaluating claims made in these controversial areas, it helps to keep in mind how science operates: Science demands independent confirmation of results and the willingness to wait until the evidence is in before drawing a conclusion. "It's okay *not* to know," Sagan said.

Medical Controversies

Standing in front of a "Quackbusters" logo, moderator Wallace Sampson, M.D., started the "Medical Controversies" session by emphasizing the huge volume of pseudoscientific medical claims facing CSICOP's Paranormal Health Claims Subcommittee: "Not everyone sees a UFO or has a psychic experience, but everyone gets ill." He pointed to the loaded terminology of alternative medicine—"false dichotomies" like orthodox/unorthodox, traditional/untraditional, toxic/nontoxic, reductionist/holistic. "Propaganda words," he called them.

The session began with a statement by Dr. Leonard Savage, representing the American Chiropractic Association. Shortly before the session began, the ACA requested time to comment on "Chiropractic Medicine," by William Jarvis, the first scheduled talk on the morning's program. Commenting that he had asked to *respond* to Jarvis's talk rather than precede it, Savage went on to emphasize the accreditation of chiropractic colleges and the respectability of "mainstream" chiropractic medicine. Chiropractors don't need outsiders telling them how to run their profession, he said: "What's needed is not hostility, arrogance, or conflict, but to all work together for the good of the patient."

Jarvis, a professor of health education at Loma Linda University who wrote his doctoral dissertation on chiropractic, described chiropractic as "not so much paranormal as nonscientific or antiscientific." He traced its conceptual

origins to nineteenth-century ideas of vitalism and said its historical beginnings under the aegis of D. D. Palmer fit the dictionary definition of a medical cult. Jarvis discussed the current rift within the chiropractic profession between "straights" (those who limit their practice to spinal manipulation) and "mixers" (those who use other therapies in addition to manipulation). "I believe it's a mistake to view chiropractic monolithically," he said.

This failure to establish criteria of practice is the greatest flaw of the chiropractic profession, Jarvis believes. He pointed out that chiropractic does not show up well when evaluated for consistency of diagnosis. In response to Savage, Jarvis said, "I disagree completely with the idea that people from outside the profession shouldn't look into chiropractic. That's the nature of the scientific method." (See also Jarvis's article on chiropractic in this issue.)

Then philosopher Austen G. Clark, an assistant professor at the University of Tulsa, examined two premises and two conclusions that underlie the concept of holistic medicine. The premises are that all diseases are caused by mental states and that traditional medicine takes a dualistic approach to treatment, separating mind from body. Proponents of holism thus conclude that traditional medicine is inadequate to treat psychosomatic disease (in their view, nearly all disease) and that holistic medicine is the appropriate approach to treatment.

How many types of medical quacks are out there? Jerry P. Lewis, M.D., of the University of California, Sacramento, recognizes three: dumb, deluded, and dishonest. He defines them as follows: a *dumb quack* is a simple person who thinks he's found the answer; a *deluded quack* is someone who is qualified but becomes enamored of a particular unproved treatment; and a *dishonest quack* is someone who promotes a treatment that he knows to be ineffective.

Lewis said quacks are recognizable by their use of lay publications as authorities and by their attacks on medicine, their endorsement of a single therapy, and their focus on subjective evaluations of the effectiveness of a therapy. Presenting a rogues' gallery of cancer quackery, including bizarre machines and wacky diets, Lewis recommended that doctors discuss quack treatments "up front" with their patients: "We should encourage patients to take responsibility for their own care, and we should be prepared to answer the claims of quacks."

Hypnosis, Astrology, and 'SHC'

The choice wasn't easy: To hear about hypnosis or spontaneous human combustion? To investigate psychic fraud or astrology? But the audience had to choose one from each pair of Saturday afternoon concurrent sessions. The sessions were a first in CSICOP conference programming, an effort to pack as much information as possible into the two-day conference.

Spontaneous Human Combustion: Joe Nickell, a technical writing instructor at the University of Kentucky, Lexington, effectively debunked the gruesome notion of spontaneous human combustion (SHC), which first gained notoriety in the early 1950s. In fact, as Nickell pointed out, the earliest reported cases date from the eighteenth century, and the term *spontaneous human combustion* was coined in the nineteenth. The majority of cases, Nickell said, involve elderly women, living alone, who had a history of alcoholism. (See Nickell's article, "Incredible Cremations," *SI*, Summer 1987.)

Reviewing case histories, Nickell

Gell-Mann laughs at Sagan remark at banquet.

pointed out several other similarities among them, including the report of a residual grease spot; the generally incomplete combustion of the body; and the charring—but not burning—of the room in which the combustion occurs. The basic fallacy in SHC is the notion that extraordinary heat is required to reduce a human body to ashes (as in a crematorium), and of course this would have to have a catastrophic effect on the surroundings. But in the majority of reported cases, several hours were available for the body to burn at a much lower temperature. If combustion occurs slowly, the clothing and the body provide "all the heat and fuel you need."

After careful investigation, Nickell concluded that SHC does not exist. All known cases can be explained by "gruesome but normal" means. "There's no need to invoke the paranormal."

Hypnosis: "Hypnosis is both more dramatic and less mysterious than most people think," said Joseph Barber, of the Department of Psychiatry at the University of California, Los Angeles. He defined hypnotism as a condition, usually induced by a hypnotist, that creates in the subject a marked susceptibility to suggestion and has the capacity to alter perception.

Hypnosis was once seen as something paranormal, magical, or mystical, but research in recent decades has shown that it is amenable to scientific investigation. In Barber's view, "what's important about hypnosis isn't that you can create such phenomena but rather that you can create so many of them so well, in so short a period of time. And you can do it systematically."

The neurophysiology of hypnosis is not yet understood, Barber said. He discussed the widely accepted "neo-dissociation" theory of Ernest Hilgard: that hypnosis is a psychological process that allows a person to have multiple simultaneous levels of consciousness.

Although Barber's audience may have been expecting him to perform a demonstration, he didn't—and explained his reasons. "The real interest of hypnosis is *internal*," he said, comparing a public demonstration of hypnosis to demonstrating dreaming by bringing someone

up on stage to go to sleep. "You wouldn't be able to see them doing the work of hypnosis."

What about stage acts of hypnosis? "Stage hypnosis is not hypnosis," said Barber flatly. "What stage hypnosis does is demonstrate how peculiarly people will behave if given a good excuse."

Barber dismissed forensic hypnosis, pointing out that "there is very little evidence that hypnosis can improve memory. The hypnotized person is likely to come up with an additional piece of information, but the information is apt to be wrong—and yet the person will most likely have great confidence in the accuracy of the recollection."

Randi, Sagan share an after-banquet moment.

Astrology: "Are clients of astrologers satisfied because astrology works, or for other reasons?" asked Ivan Kelly, a psychology professor at the University of Saskatchewan and chairman of CSICOP's Astrology Subcommittee. If you ask astrologers for evidence of their success, they'll usually cite testimonials. "Birth charts are nonjudgmental, results are nonfalsifiable, and most astrologers are very nice people," Kelly pointed out. Thus astrology may very well work, if by "work" you mean "be helpful," and its success would owe more to "personal validation" than to astrological theory.

Kelly listed 20 nonastrological factors that enter into the "personal validation" of astrology, including: Barnum statements (general statements interpreted specifically by individuals), placebo effects, hindsight bias, cold-reading effects, rapport effects, social desirability effects, and projection effects (finding meaning where none exists).

Comparing astrology to phrenology, Kelly pointed out several similarities. Both focus on personal development and personal characteristics; both are based on theories expressed authoritatively although lacking experimental evidence. In both cases, clients could see for themselves that the system worked. And later practitioners of phrenology, like today's astrologers, tended to view the system as spiritual rather than scientific. Yet, "in spite of everything, phrenology was wrong," said Kelly. "So why shouldn't we conclude for the same reasons that astrology is wrong?"

Psychic Fraud: This session turned out to be far more narrow in scope. Detective Patrick Riley of the Los Angeles Police Department's bunco-forgery squad told of LAPD's efforts to combat fortune-telling shops. "Fronts for swindle," he called them. The fortune tellers are typically women, often from families of fortune tellers. They set up temporary store-front shops, lure in the gullible, find ways to make off with their money, and disappear. A typical gambit is to appear to withdraw a foreign object from an egg or a tomato and thereby convince the victims that they are cursed. Money can

withdraw the curse. Another is to persuade the innocent that their money is cursed. If they bring it in, the fortune teller will be all too willing to exchange the afflicted currency for uncursed bills. The money is exchanged, but the wad of bills returned contains only shredded paper in the center. "It's the oldest scam in the world."

Riley lamented the loss of the Los Angeles fortune-telling ordinance passed in the 1920s, which provided some law enforcement leeway. The State Supreme Court threw it out in 1985. The fortune-tellers are now harder to catch than ever, he said. He called for a return to the wisdom of the former law, "that no one can predict the future."

Extraterrestrial Intelligence: What Are the Probabilities?

Astronomer Frank Drake, dean of natural sciences at the University of California, Santa Cruz, led off the opening session of the conference by asking why *the search for extraterrestrial intelligence* (SETI) should be on the program. "Those of us involved know the search for extraterrestrial intelligence is mainline science that needs no second-guessing about its worthwhileness," he said. But Drake acknowledged that SETI is a good example of a "truly scientific" activity that when improperly presented can look like pseudoscience.

SETI follows scientific methodology, Drake pointed out. "We assume the simplest explanation, even if it doesn't seem that way." The best answer to the question of why anyone would think there could be life in outer space is simply, "Why not?" "The development of life required nothing special," Drake said, "no freak phenomenon or one-time event." It follows that there should be "a great deal of life out there in the universe."

How difficult will it be to find extraterrestrial life, if it does exist? "In SETI, you can't know how hard the search is until you've succeeded," Drake said, pointing out that there is—and should be—controversy over how the search should be conducted and what kinds of evidence should be sought. "But there shouldn't be, and isn't, controversy over whether such life is likely to exist," he said firmly.

Drake mentioned an argument that has been used to challenge his view of the prevalence of extraterrestrial life: the notion of colonization. "If only one civilization chooses to colonize, by some calculations they should have come to Earth by now; so, since they haven't, we must be alone." Drake offered several counter-arguments to this view. First, citing Carl Sagan, he suggested that colonization could follow a random-walk pattern: "They're not here yet, but maybe soon." Second, there could be impediments to space travel that we don't yet know of (*the "iron basketball" argument*). *Third*, extraterrestrial visitors might already be here, unknown to us. Fourth—the view that Drake himself espouses—"Maybe colonization isn't something an intelligent civilization would do, in terms of a cost/benefit analysis that would balance the energy cost of colonization against the cost of providing a good life for folks at home."

A somewhat different view was expressed by astronomer Robert Rood of the University of Virginia, Charlottesville, who has debated Drake before. Although he acknowledged that "you can't prove extraterrestrial civilizations don't exist," Rood compared them to unicorns: "They're both very plausible animals." Referring to the medieval legend that unicorns could only be captured by

SETI panelists Tarter, Drake, Hibbs, Lee Nisbet (CSICOP), and Rood take questions from audience.

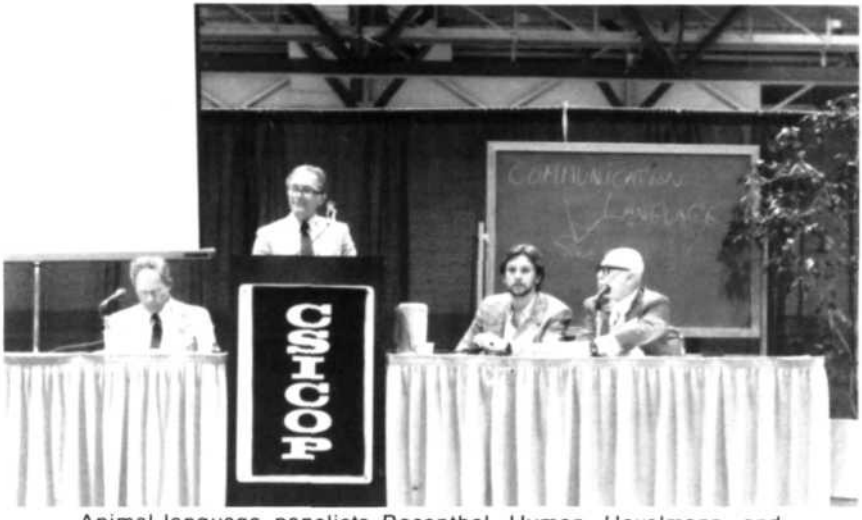
virgins, Rood argued, "If you put a virgin out, wait, and no unicorn shows up, all you can conclude is that unicorns don't like virgins. So you've learned something about the habits of unicorns, but nothing about their existence. What was in it for the unicorn? I ask the same question about extraterrestrial civilizations."

Rood believes that human beings will find space a technologically fruitful, and profitable, environment. "We won't be able to grow much more on Earth, but in space we can expand by factors of billions." Energy is abundant in space, he pointed out. Furthermore, space is a benign environment for technology, even though it's hostile to life. The surface of a planet, he said, is an extremely hostile environment to technology.

It will prove easier to adapt life forms to space, Rood said, than to adapt technology to a planetary surface. According to a unit of measurement that Rood helped devise—*total wattage intercepted: terrestrial* (TWIT)—Earth today is "a milli-TWIT society, whereas in space we could be a mega-TWIT society just by controlling one asteroid." In Rood's view, it's "almost inevitable" that extraterrestrial civilizations would go as far as space stations. Whether they would continue their penetration of space to colonize other planets, however, is another question. "Using Drake's figures, out of 40 million civilizations, if just one had colonized, they would have been here at the time of the dinosaurs," Rood said. "So perhaps we could be a fluke."

Research astronomer Jill Tarter of the SETI Institute at the University of California, Berkeley, in the past ten years has done more observations in the SETI program than anyone else. She said SETI isn't looking for unicorns. "We're looking for something that we know very well exists: evidence of technology like the evidence that our technology itself produces." The goal of the SETI program funded by the National Aeronautics and Space Administration (NASA) is to search for signs of extraterrestrial life by using the larger radio telescopes to search for radio signals.

Tarter compared SETI to "a nine-plus dimensional haystack in which you're searching for the needle." The dimensions



Photos for CSICOP by L. E. Thompson

Animal-language panelists Rosenthal, Hyman, Hovelmann, and Sebeok.

that must be searched through include: three spatial dimensions; time; frequency; polarization; transmitted power; bandwidth; and modulation.

In 27 years of searching, 48 searches have been made from seven countries, mostly in radio wavelengths. These represent tens of thousands of hours of observations, Tarter said. Yet "none of this has found anything that is reproducible or believable."

The NASA program is one of several that are currently under way. According to Tarter, NASA's approach to the SETI problem involves:

1. Large-scale spectrum analyzers that can handle tens of millions of channels.

2. A bimodal strategy of all-sky observations and selected solar-type stars.

3. Automated detection and recognition of astrophysical signals, with an automated check for interfering signals, that can search two polarizations simultaneously.

Tarter described the current technology for the SETI program as "near optimum." This is a good reason, she said, for the search to be pursued now. She believes an even more potent argument is that increasing radio frequency interference is making ground-based searches increasingly more difficult to perform.

As evidence of the SETI program's capabilities, Tarter noted that it has already detected a signal from more than 3 billion miles away. Instead of an extraterrestrial signal, however, the find turned out to be "our most extraterrestrial projection"—Pioneer 10.

Animal Language: Fact or Illusion?

NO SESSION at the conference provoked more discussion than the symposium on animal language. Thomas Sebeok, professor of linguistics at Indiana University, Bloomington, began by expressing disappointment that none of the proponents of animal language who had been invited to participate in the session had accepted.

Sebeok pointed out that the concept

of animal language covers a spectrum ranging from "generally accepted to less accepted." Communication is fundamental to animal life, and animals communicate perfectly well nonverbally. To clarify discussion, Sebeok distinguished "communication," which has always existed, from "language," which humans developed about 3 million years ago, and "speech," which "exapted" from language about 100,000 years ago. Why did it take so long for speech to come out of language? Speech involves the intersection of two different capacities: first, the vocal cords and speech structure; second, hearing. "That this is not perfect is obvious from the fact that most people don't understand what other people are saying, and the truth of that will be seen in the question-and-answer session," Sebeok quipped.

Sebeok himself first became interested in claims of animal speech when he was asked to write a review of the literature on the subject. After reading the literature and visiting all the laboratories that would permit him to visit, he came to the conclusion that the results were not scientifically valid: "They were not reproducible." Sebeok noted, by the way, that "many labs will tell you the animals won't perform when you're there"—a claim he felt would sound familiar to the CSICOP audience.

Criticism from himself and others "caused a storm" in the field of animal-language research, Sebeok said. "Some of the major players simply announced they had quit the field." Federal funding for animal-language research dried up, he said, and reputable journals stopped publishing articles on it "and even, regrettably, have stopped refereeing them."

Recently, however, animal-language research has shown signs of resurfacing under a new name: "animal intelligence." Sebeok mentioned a new series from a major university press on "animal intelligence." "The first title in the series is *Ape Language*" he said. Sebeok calls terms like *animal intelligence* "weasel words." "If there's one word that's slipperier even than *language,* it's *intelligence,*" he says.

Calling the debate over the definition of "language" as applied to animal-language research "largely futile," Gerd Hövelmann of the University of Marburg, West Germany, compared today's animal-language research with past efforts. He noted that contemporary ape-language research is "almost entirely an American phenomenon" and can be traced to tests of the linguistic abilities of domestic animals—pigs, horses, donkeys, and dogs—that were conducted between 1900 and 1933. When early experiments are compared with more recent experiments, Hövelmann said, the comparison shows that the early tests were almost wholly uncontrolled. "Today's methods are hardly superior to those applied in the old research," he said. "Many of the same fallacies still exist."

Reviewing the notorious Clever Hans case, Hövelmann explained the "Clever Hans fallacy": regarding the animal as a message source rather than as a reflection of a message sent by the human involved. Ape-language researchers claim that Clever Hans effects have been ruled out, at least in some experiments. But in fact, Hövelmann said, none even comes close to doing so. Ruling out Clever Hans effects would mean complete isolation of the animal from any perception or contact with the researcher. Researchers also claim that they control the verbal and nonverbal signals they transmit to the animals. However, "these signals are almost impossible to control voluntarily," said Hövelmann.

Further parallels between early and contemporary research include *experi-*

menter expectancy effects; shortcomings in data recording, selection, and reduction; immunizing strategies, including an "inexhaustible" variety of excuses and rationalizations.

The final speaker of the session, social psychologist Robert Rosenthal of Harvard University, described himself as one who "studies the behavior of those who study behavior." The problems that plague animal-language research, he said, are the same problems that affect the work of all those who study behavior.

Rosenthal identified two classes of experimeter effects in behavioral research: those that affect the subject, and those that don't. For example, the interaction between the experimenter and the subject will influence how the subject performs. Experimenter effects with no direct effect on the subject nonetheless affect the outcome of the experiment. For example, "observer effects" influence how the experimenter views the experiment; they tend to "favor the theory of the theoretician," Rosenthal said. "Interpreter effects" come into play as the experimenter endeavors to understand the data obtained.

To avoid such effects as far as possible, Rosenthal emphasized the importance of running behavioral experiments blind and even double-blind. Because experimenter effects can be very subtle, it's not realistic for experimenters to believe or claim—as in the case of some animal-language researchers, as Hövelmann had pointed out—that they can control the signals they send to their experimental subjects.

The question period following these talks extended the range of discussion even further, to dolphins and even to plants. Responding to a question about dolphin research being conducted in Hawaii, Sebeok replied that this also is "open to the Clever Hans effect." Asked about the relative intelligence of various species, he said flatly: "There's no way to compare intelligence. The notion of 'intelligence' is too vague."

Moderator Ray Hyman wound up the session by concluding, "The question of animal language is so difficult that we don't even know if human beings can speak."

In Conclusion

The sense of intellectual adventure that has characterized past CSICOP conferences was fully in evidence at the Pasadena meeting. The choice of theme and topics emphasized the continuity between science, fringe science, and pseudoscience, as one shades into the next with no clear line of demarcation.

Nearly everyone's intellectual comfort was disturbed at some point, and I know I wasn't alone in my initial surprise that the results of animal-language research should be open to serious question. The conference programming served as a reminder that critical evaluation is not as straightforward an activity as it seems: The appropriate and effective response to claims of, say, trance-channeling will of necessity differ from criticism of scientific research well within or just outside the boundaries of mainstream science. Yet the umbrella of scientific respectability should not be permitted to shelter fringe science from critical showers.

By forcing the reexamination of the comforting belief in clearcut distinctions between "legitimate" scientific research and pseudoscience, the 1987 conference program served an important purpose. After all, the essence of skepticism lies in the willingness not just to examine one's beliefs but to make the examination a continuing and open-ended process.

—Lys Ann Shore

Trance-Channelers Challenged to Tests: Public Urged to Be Cautious About Claims

The following statement on trance-channeling was issued by CSICOP at a news conference in Pasadena, California, April 3, 1987, during the annual CSICOP conference.

THE EXECUTIVE COUNCIL of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) is disturbed by the rapid rise of the latest New Age fad of "trance-channeling."

Recent polls indicate that a considerable segment of the American population believes that it is possible "to have contact with the dead." In a report published in *American Health* magazine (January/February 1987), one poll found that 42 percent of the adult population now claims to have had contact with dead persons, as compared to 27 percent in 1973. The figure is 67 percent for widows. Trance-channeling no doubt contributes to this attitude.

We submit that trance-channeling is nothing more than a chic renaming of what used to be known as "spiritualism."

The spiritualist movement was launched in 1848 when two sisters from upstate New York, Margaret and Kate Fox, claimed that they were able to "communicate with the dead." Through a series of rapping noises, the "spirits from beyond" gave advice, made predictions, and consoled loved ones. The Fox sisters went on tour and performed in large arenas, charging clients for the opportunity to communicate with spirits. Within a few months of the Fox sisters' beginnings, thousands of mediums around the world were claiming the ability to communicate with the dead. Years later, Maggie Fox admitted that she and her sister had been perpetrating a hoax.

The movement they created continued. By the mid-1920s, however, the scientific community had thoroughly discredited Eusapia Palladino, Margery Crandon, and other "mediums" who had been duping an unsuspecting public.

Although spiritualism had been on the decline in North America, it has now reemerged as "trance-channeling." Included among the well-known trance-channelers is J. Z. Knight, who claims that a 35,000-year-old man named "Ramtha" uses her body to speak words of wisdom. Actress Shirley MacLaine's use of channelers to gain information about her "past lives" has led to wide public acceptance of this practice.

The Executive Council of CSICOP finds it surprising that trance-channelers have been allowed to make uncorroborated and unverified claims, charge people hundreds or thousands of dollars for public and private audiences, and offer them advice on business and personal matters without providing evidence that they indeed have contact with discarnate beings. Many people have been misled by such practices.

We challenge trance-channelers to offer proof of their abilities. The Executive Council of CSICOP is

making a public offer to provide the services of scientific inquirers to test, under controlled laboratory conditions, the claims of trance-channelers.

We suggest that the public be extremely cautious about these claims unless and until they are corroborated by carefully controlled scientific testing.

• *Associated Press science writer Lee Siegel contacted J. Z. Knight's office for comment about the CSICOP statement. In a reply issued by spokesman Les Sinclair, Knight said: "Isn't it wonderful we have a society which allows us freedom of speech, movement, ideas, and beliefs." She also said it was "wonderful" that skeptics "can attain national media attention which allows them fame and glory. God bless them." This nonresponse failed to mention the challenge to submit her claimed abilities to scientific testing.*

Tests of Holy Cloth Shrouded in Mystery

This statement concerning tests on the Shroud of Turin was issued by CSICOP at its news conference in Pasadena, April 3, 1987, during the CSICOP annual conference. The documents referred to were distributed but are not included here. Copies are available from the CSICOP office.

IN 1983, THE VATICAN inherited the Shroud of Turin, when its owner, the exiled King Umberto of Italy, died. For a time the Vatican continued to prohibit radiocarbon dating of the cloth. But late in 1986 came the headline: "Pope Allows Tests on Shroud of Turin." The story arose out of a communiqué issued by the Archbishop of Turin on October 4 (Document A). It said several laboratories around the world would be involved in the tests. The communiqué also said that the Pope had given his approval for the tests.

The Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) believes that the seven laboratories involved are:

United States: University of Rochester; University of Arizona; Brookhaven National Laboratory, Upton, New York
France: CNRS-CEA
United Kingdom: The Radiocarbon Accelerator Unit at Oxford University; U.K. Atomic Energy Authority's Harwell Laboratory
Switzerland: ETH, Zurich

The *Harwell Bulletin* of October 31, 1986, gave some details of the tests (Document B).

However, Professor Harry Gove, of the University of Rochester, has said: "Permission to proceed has not yet been given by the Vatican."

CSICOP has written several letters to the Vatican and the Archbishop of Turin [seeking assurances about the research protocols], but none has been answered (Documents C-G).

The Archbishop's communiqué also states that the "results of these tests will be made known by Easter 1988." The choice of the date suggests a religious

orientation to the testing. Scientists do not time the release of test results to commemorate religious holidays.

There is world interest in the testing of the Shroud. It is therefore important that the testing procedure be objective, accurate, and beyond reproach. It is in the interest of all parties that there be no dispute about the methodology of the tests after the release of the test results.

CSICOP is concerned with the scientific procedures to be used. Only skimpy details are available in a letter from Dr. Hedges, Director of the Radiocarbon Accelerator Unit at Oxford.

CSICOP believes collection of specimens from the Shroud should be done by disinterested parties in front of independent neutral observers to positively ensure the authenticity of the samples. A chain of evidence must be maintained, double-blind procedures scrupulously followed.

A chain of evidence involves a verifiable secure history of the movement of samples from the time of taking them from the Shroud to the testing. The chain must be secure so that no doubt can be thrown on the final result.

CSICOP urges that the collection of Shroud samples and suitable control specimens, the keying of same, and the custody of the key to the identities of the specimens be performed by disinterested persons, specifically, that church authorities and such groups as the Shroud of Turin Research Project (STURP) and the Association of Scholars and Scientists International for the Shroud of Turin (ASSIST), as well as skeptical groups, be kept from direct involvement.

We recommend that such groups as STURP, ASSIST, and CSICOP have representatives present to observe the collection and transmittal of samples. It is important that a complete protocol be made public well in advance of any such collection of samples and be publicly scrutinized to ensure objectivity before implementation. If this is not done there will always be doubts about the tightness of the chain of evidence and the methodology and protocol of the testing. Given the controversy about past activities and doubts about the methodology and objectivity of some past researchers, it is essential that the dating tests be handled in a scrupulously objective manner.

The tests must be conducted fairly and competently. •

Editor's note: The British scientific journal Nature *published a letter relevant to the above concerns in its June 11, 1987, issue (327:456). The letter was from M. S. Tite, Research Laboratory, British Museum, London. It responded to an earlier published letter (327:10, May 7, 1987) by Denis Dutton, University of Canterbury, New Zealand (and chairman of the New Zealand Skeptics), in which Dutton had raised exactly the same questions contained in the CSICOP statement above and mentioned his and CSICOP's inability to elicit satisfactory answers about plans to protect against tampering. Here is Tite's response, in part: "I wish to assure Denis Dutton that all the institutions involved in the proposed radiocarbon dating of the Shroud of Turin are fully aware of the crucial need to ensure that the 'chain of evidence' remains unbroken. It was to meet this need*

that the British Museum accepted the invitation to act as 'guarantor' and independent observer. The purpose of the meeting in Turin last autumn was to devise procedures for every step of the sampling and testing . . . to preclude any possibility of tampering with the samples. These procedural steps have yet to be finally agreed by the Pontifical Academy of Sciences and the Archbishopric of Turin so I am not at liberty to divulge their details. But, I can reassure Dutton that should the proposed procedures be amended to introduce a possibility of tampering with the samples, the British Museum would decline to act as a certifying institution. Nor would the radiocarbon dating laboratories then necessarily be willing to participate in the project."

—K.F.

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News and Comment

Alien-Abduction Tales, Books Spark Author Rivalries

BUDD HOPKINS, who has reigned as the Supreme Guru of UFO-abductions since his first book on the subject, *Missing Time,* was published in 1981, is being challenged for that role by one of his former subjects, Whitley Strieber.

Strieber won the first round with his book *Communion,* which beat Hopkins's new book, *Intruders,* to market by several months and quickly moved into the best-seller lists of both the *New York Times* and the *Washington Post.* By mid-May, Strieber's book was in first place on both, while Hopkins's had yet to make the list. (Both books are reviewed at length elsewhere in this issue.)

But the rivalry goes beyond book sales. Hopkins's most recent book, published by prestigious Random House, is a direct result of his earlier *Missing Time,* published by a lesser house, which invited readers who suspected they too might be victims of ETs to write to Hopkins. By this means Hopkins learned of an Indianapolis woman who became the centerpiece of his latest book. And it also put Hopkins in touch with some of the book's lesser "victims."

Strieber, who first contacted Hopkins —a fellow New Yorker—after a weird nightmare on December 26, 1985, and underwent regressive hypnosis under Hopkins's tutelage, also included a similar invitation to possible "fellow-victims" in his book.

The results have been staggering, as Strieber reports in an article, written shortly after his book came out, in the January/February 1987 issue of the J. Allen Hynek Center for UFO Studies' publication, *International UFO Reporter.* "In the past six weeks I have received over 500 letters," Strieber said. More recently, when he appeared May 6 on the "Tonight Show" with Johnny Carson (who incidentally, subjected him to some skeptical questioning), he said he had received 40 letters on that day alone.

Strieber characterizes this outpouring of letters as "one of the largest repositories of visitor experiences ever assembled." In the *IUR* article, he said that 85 percent of the letters described "some sort of 'visitor' experience. About 40 percent report an actual abduction."

Their contents will "be catalogued into a database by a group of professional psychologists, and follow-up studies of selected volunteers will be carried out, to include an extensive array of mental and physical tests." This will be done by a newly created not-for-profit organization Strieber has formed, tentatively called the Triad Group.

Strieber, who has confirmed published reports that he received a $1-million cash advance from his publisher for *Communion,* should have sufficient financial resources for the task—probably far more than Hopkins.

While Strieber's book makes occa-

sional mention of Hopkins, the reverse is not true. This is curious if Hopkins believes Strieber is the victim of a UFO-abduction—unless Hopkins already viewed Strieber as a potential rival.

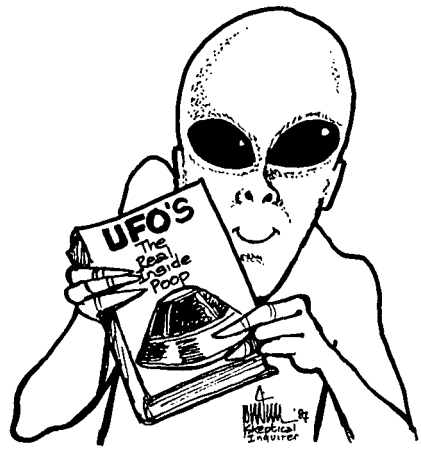
Ironically, both Hopkins and Strieber are Johnny-come-latelies in the UFO-abduction field, where the pioneering work was done by Leo Sprinkle, a psychologist at the University of Wyoming. Unfortunately for Sprinkle, he lacked the exploitative instincts of Hopkins and Strieber and had no literary agent with good contacts in the publishing world.

Although Strieber claims he had scant interest in UFOs prior to late 1985, his pronouncements in *IUR* suggest he hopes to fill the UFO movement's leadership void created by the death of J. Allen Hynek in mid-1986.

For example, in Strieber's *IUR* article he criticizes the "UFO community" for wasting time in the past "debating debunkers." Strieber, who flatly refused to appear on a Seattle KOMO-TV talk-show if this writer were present, explains that "there is no reason why people holding mainstream opinions [i.e., "UFO-believers"] should expect to be paired off with obvious fanatics [i.e., UFO-skeptics]. If there is to be sensible debate, let it be between people who agree on the fundamental reality that something strange is taking place, but disagree about its nature."

Strieber concludes: "If we are to move toward the truth, it will be because the open-minded majority has found an open-minded leadership from within the UFO community. . . . By arguing these past 40 years about whether or not the [UFO] phenomenon is real, we have in effect given it free rein to do with us what it will.

"We must put this absurd argument behind us and address the urgent questions of who and what the visitors are and what they may be doing here," according to Strieber. Perhaps the UFO movement now has an eloquent new



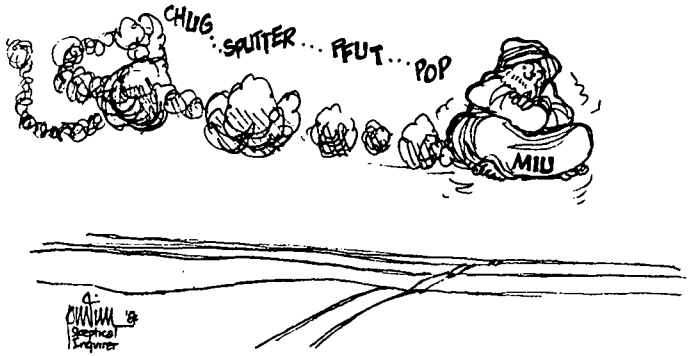
spokesman whose logic dovetails with its own.

But before UFOlogists embrace Strieber too tightly, they ought to study *Communion* very carefully. They will discover that, since long before Strieber's alleged UFO-abduction, every night before he retires he feels compelled to look under every bed and search every closet of his cabin in a remote part of upper New York State even though it is equipped with an elaborate burglar alarm system. Perhaps this is because of his earlier encounters with ghostlike and demonic creatures he describes in *Communion.*

And UFOlogists also should know that before Strieber became intrigued by UFOs, he "experimented with everything from mystical Christianity to Zen to witchcraft (of the white variety)," according to his *IUR* article.

—*Philip J. Klass*

Veteran UFO investigator Philip J. Klass is writing a book about alien-abduction claims to be published in 1988 by Prometheus Books. He is chairman of CSICOP's UFO Subcommittee and author of UFOs: The Public Deceived *(Prometheus).*



Troubles Mount for TM and Maharishi University

SINCE NOVEMBER 1986, the Transcendental Meditation movement and Maharishi International University in Fairfield, Iowa, have suffered several embarrassing revelations and setbacks. Trouble for them started when investigative reporter Frank Santiago of the *Des Moines Register* published a series of revealing articles about recent developments at MIU.

Robert Kropinski and five other former MIU students were reported as plaintiffs in a lawsuit charging MIU and the TM World Plan Executive Council with fraud. They said they were promised better health, a competitive edge in business, and the ability to levitate. Instead, Kropinski says, Transcendental Meditation seriously impeded his ability to lead a normal life, these impediments may continue for the rest of his life, and MIU officials were aware of the potential dangers but ignored them.

The lawsuit has encouraged others to come forward and talk about experiences they had while at MIU. They described strange post-meditation behavior; a cultlike atmosphere; and mass meditation attempts to ward off tornadoes.

It was revealed that MIU has been an aggressive seeker of state and federal funds. Armed with accreditation by the North Central Association, MIU has become the leader among Iowa private colleges in receiving public monies for education. With only 400 to 700 students (no one knows for sure), MIU received more money than Drake University, even though Drake has at least eight times as many students.

In the midst of all this, one of MIU's most-often-cited success stories, Ed Beckley, the "Millionaire Maker," came under investigation by the state attorney general's office. Of particular interest were Beckley's get-rich-quick schemes: "Credit Card Millionaire System" and "No Down-Payment Real Estate Seminar." To avoid further problems with the attorney general, Beckley agreed to repay his customers approximately $2.4 million. Formerly one of Fairfield's largest employers, Beckley's company has dropped from 560 workers to fewer than 30. Beckley is now in bankruptcy court.

In mid-January 1987, Kropinski was awarded $138,000 in his suit against MIU. Announcement of the trial's outcome brought more revelations about the TM movement into public view. Kropinski had testified that TM had caused him "headaches, anxiety, impulses toward violence, hallucinations, confusion, loss of memory, screaming fits, lack of focus, paranoia, social withdrawal." Kropinski

had also discredited MIU claims of "flying" during meditation. The trials of the five other plaintiffs were to follow.

Adverse publicity again befell MIU in late January, when another jury awarded Jeffrey Knox, an MIU graduate, $105,000 in a slander and breach-of-contract suit. Knox claimed he was unfairly fired from Prime Energy, Inc., of Fairfield, because he had abandoned the Maharishi's brand of TM in favor of a rival guru, Prakashanan Saraswati. The jury agreed and ordered Knox's boss, Roger D. Beaton, described as an official of the TM movement, to pay $70,000 in actual damages and $35,000 in punitive damages.

This is probably not the end of MIU's problems. Each successful suit against MIU or its affiliates encourages other disgruntled followers to come forward. The near future, at least, promises a steady flow of further embarrassing incidents for the levitating guru and his still-devoted though somewhat lower-flying followers.

—*Franklin Trumpy*

Franklin Trumpy teaches physics at the Des Moines Area Community College, Ames, Iowa.

Cornfield UFO Landing Case: Minnesotan Confesses Hoax

A UFO-LANDING report eight years ago, complete with a circular area of flattened corn stalks, landing-pad depressions, and scorched vegetation, has now been explained. It was a practical joke put over on the hoaxer's UFO-believing nephew. The hoax was so readily believed and so quickly publicized, its perpetrator only now decided to come forward and confess.

David Olson, a 44-year-old Minnesota chemist, disclosed that it was he—not an alien space ship—who flattened two circles in his nephew's cornfield and produced other "signs" of a saucer landing. It all began in the summer of 1979 at a family gathering. The talk got around to UFOs. His nephew, Curtis Olson, turned out to be strongly convinced that flying saucers were visiting Earth.

David Olson decided to visit his nephew's cornfield a few miles outside of Lake City, Minnesota, and leave evidence of a fake UFO landing. He drove his pickup to within a half-mile of the cornfield on September 7 or 8, 1979, and lugged a posthole tamper and butane torch to the field.

He covered his feet with burlap to avoid leaving footprints and began tamping down the corn. "I started stepping corn down and making progressively bigger circles." The largest circle was about 50 feet in diameter. A smaller one nearby was about 30 feet in diameter—"an escort ship." With the posthole tamper he made seven symmetrical "landing-gear impressions." With the butane torch he then singed some of the corn on the ground and some of the standing corn around the circle. "That would have simulated a blast of energy."

Olson says he got home about the time the sun came up. "I'm not sure all that effort was worth it."

His nephew discovered the flattened corn on September 16. An official investigation followed. The Wabasha County sheriff, a county agricultural extension agent, and an investigator for the Center for UFO Studies, of Evanston, Illinois, all took part. It created quite a stir. Newspapers followed the investigation. Curtis Olson was interviewed on TV and radio. Other area residents reported subsequent UFO sightings.

"I was going to tell someone that it was a prank, but, my goodness, it just got out of hand," David Olson says now (*Minneapolis Star and Tribune,* April 8, 1987). "It got to the point where if I'd come forth people would have felt I was

Some of the 1979 newspaper stories about the cornfield UFO mystery.

trying to make a fool of somebody in the family."

Olson says he decided to speak up the first week of April 1987 after seeing a letter to the editor in the *Minneapolis Star and Tribune* on March 31 from Robert McCoy, president of the Minnesota Skeptics, a local group that cooperates with CSICOP, debunking a 1952 flying-saucer photo the newspaper had published. "I decided to call him up and give him something more to be skeptical about," Olson said. "He convinced me to make the confession public."

Curtis Olson, contacted by the *St. Paul Pioneer Press Dispatch* (April 7, 1987) in Alzada, Montana, where he now works, rejected his uncle's confession. "I know he is capable of pranks. But we had experts out there who said it couldn't have been a prank. They concluded that something came down with tremendous force."

David Olson said he's not surprised by that view. "I got the feeling that a lot of people who should've known better really felt there was a UFO involved. But then I think with UFOs it's a case where people believe what they want to."

—*Kendrick Frazier*

Selling the Lottery with ESP

"DO YOU HAVE ESP?" the full-page ad queried in block letters three-and-a-half inches high. The message continued in smaller type: "Extra Sensory Perception. Do you have this strange unexplainable power? It could be very profitable. Try this simple test. On the following page is a number from 1 through 5. Don't peek. Now sit back. Concentrate. Harder. Can you guess it? Now the easy part. Turn the page."

What was going on here? Had some psychic resorted to full-page ads in the *Boston Globe* just to tout ESP? Hardly. The Massachusetts Lottery Commission had merely decided to use ESP to sell lottery tickets. Or at least to use public interest and fascination with ESP.

Harmless? Innocent? Perhaps. But look what you find when you turn the page—another full-page ad. The number "3" blares out at you in 11-inch-high type. Below it comes the sell. "Did you guess correctly? Maybe it wasn't a guess. It is believed most people possess some form of ESP. Which may explain why over 7,000 people win in the Numbers Game every day." It goes on to pitch for lottery tickets and concludes: "Test your powers of ESP. Play the numbers game. You may already know what tonight's winning numbers will be."

Far more than one-fifth of people will guess "3" when given the 1-through-5 choice, so the lottery commission could be accused of deck-stacking or deception on that point alone. (Other versions of the ad *did* use other numbers.) Not to mention the unsupported assertion that "it is believed most people possess some form of ESP." Who says? Certainly not psychologists. And is this really the way a lottery commission should be pitching tickets?

Massachusetts Lottery Commission ad in the *Boston Globe*.

These and other questions were indeed raised in a well-stated letter to the *Boston Globe* published April 28. Titled "Lottery's Con Game," it was by Charles Akers of Newtonville, Massachusetts. (Akers is a member of both the Parapsychological Association and CSICOP's Parapsychology Subcommittee.) "I was dismayed to find the *Globe* . . . participating in a fraudulent advertising campaign by the State Lottery. The ads suggest that ESP can be used to beat the odds in the Numbers Game. . . . The ads include a bogus test of ESP . . . and assert that ESP 'may explain why over 7,000 people win in the Numbers Game every day.' The truth is that no such explanation is needed: In all probability, the number of winners does not exceed what would be expected on a chance basis. If Lottery officials have evidence to the contrary . . . why don't they, or the *Globe*, publish the data and put an end to this psychic con game?"

Unfortunately, Akers's very reasonable letter can hardly compete in impact with multiple printings of double-page ads presenting such confused fact and logic. The Massachusetts Lottery Commission did not reply to an invitation to respond to these criticisms.

—*Kendrick Frazier*

Alaska 'UFO' Sightings Caused By Soviet Satellite Launch

THE LAUNCHING of the Kosmos-1833 satellite from Tyuratam on March 18, 1987, at 1830 UT, led to a large number of UFO reports from western Alaska. The spacecraft's upper stage was venting leftover rocket propellant when it passed off the Seward Peninsula at about 1857 UT (11:57 P.M., March 17, Yukon Stardard Time).

Two reports came from observers on St. Lawrence Island in the Bering Sea. Savoonga (63.40 N, 170.31 W): "It was round and it seemed bigger than a jetliner." Gambell (63.46 N, 171.45 W): "There seemed to be a big bright cloud of smoke thrusting downward with one red and one white light. . . . The object seemed to be bigger than a 747 jet at that altitude. No body was visible, just the bright cloud of smoke and the lights."

Other reports came from mainland observers out late to watch the mushers in the Iditarod dogsled race. Tanunak (60.34 N, 165.15 W): "It looked like a satellite—bright, white light within a glowing area. . . ," like "aircraft landing lights as seen through the fog." Elim (64.35 N, 162.20 W) saw a "bright aqua-blue-green colored, oval-shaped object approximately the size of two football fields with three lights on the side and an egg-shaped cloud around and leaving a smoke trail behind." Newsmen talked to more than 40 witnesses in these areas.

David E. Cartier, the mayor of Pilot Station (61.58 N, 162.59 W) in the Yukon River delta, is a subscriber to the SKEPTICAL INQUIRER and had read the Winter 1987 issue with my article on the Great East Coast UFO of August 1986 a few days after his sighting. The startling similarities prompted him to write a letter to me. The apparition "brightened and began jetting out a plume of milky nebulous material. This plume was slowly rotating and formed a cloud around the starlike object with a diameter of between 4 and 5 times that of the full moon. This wondrous show continued for around 3 minutes, then rapidly faded and disappeared" (Cartier, March 30, 1987 postmark). He originally reported it as moving from northeast to southwest, but on plotting it against star charts reconsidered and concluded that it had been moving largely west to east. "The story of this sighting got around and local eskimo parents are now using it in stern admonitions to their children as a prime example of why 'you shouldn't stay out late at night!' " (Cartier, letter of April 16, 1987).

Army National Guard observers reported to Anchorage that they watched

We've Expanded

With this issue, the SKEPTICAL INQUIRER has expanded permanently to 112 pages. This should allow us to gradually reduce a backlog of articles awaiting publication and to bring even more articles, evaluations, reviews, columns, and timely news to you. Your continued interest and support makes this possible, and we thank you.

lights moving southeast at about 30,000 feet altitude.

The event was caused by the launching from Tyuratam of an SL-16 vehicle (the USSR's new intermediate Saturn-I-class military booster, carrying a "1603-class" satellite (possibly military ELINT) into an unusually high inclination (71 degrees, highest ever from Tyuratam), high altitude (850 km) orbit. Computer plots generated by Nicholas Johnson (Teledyne-Brown Corporation, Colorado Springs) showed the object's groundtrack crossing the Aleutians about 900 km from the Yukon River delta, at an altitude of about 310 to 320 km. Such launchings, while rare, will occur again, and under the proper twilight and weather conditions will probably again be widely visible throughout western Alaska.

—*James E. Oberg*

James Oberg is a computer engineer at the Johnson Space Flight Center in Houston, an expert on the Soviet space program, and a veteran investigator of UFO reports.

Strieber on 'Tonight'

WHEN *COMMUNION* author Whitley Strieber (see review, p. 85) appeared on the NBC "Tonight Show" May 6, 1987, his most telling words were his first: "I am a highly imaginative writer." Johnny Carson, by the way, forthrightly declared himself skeptical of Strieber's claims and, while not neglecting his duties as a cordial host, proceeded to subject the author to a whole series of reasonably probing questions. Later in the same month, a woman guest, who on a previous appearance had gone on at length about the powers of numerology, announced that she no longer believed in any of that, partly as a result of Carson's on-air skepticism about it. Now, when a guest wants to chat about astrology, psychic powers, reincarnation, and so on, Carson always indicates he puts no stock in the contention.

—*K.F.*

Quack AIDS Remedies

KUDOS TO CBS's "West 57th" for its April 27, 1987, "AIDS Alternatives" investigation, a forthright exposure of practitioners who are selling fraudulent AIDS remedies for high profit. The segment's producers and reporters let the assorted practitioners have their say, but then countered the statements with their inquiries contradicting each claim. One of television's better efforts at critical examination of pseudoscientific claims.

—*K.F.*

In Brief

TOM EASTON, author of the article in our Summer 1987 issue about programming a computer to produce simulated "psychic" predictions, says he will send a copy of the program to anyone who sends him a blank disk and return postage. His address: Thomas A. Easton, Box 805, RFD 2, Belfast, Maine 04915.

* * *

Why does Shirley MacLaine charge handsomely for her "Connecting With the Higher Self" seminars? "It's karmically unbalanced to do something for nothing," she says. "I decided to charge $100 for mind, $100 for body, and $100 for spirit." (Jonathan Mandell, *Newsday*) •

MARTIN GARDNER

Notes of a Fringe-Watcher

The Third Eye

SINCE 1950, almost every top publishing house in the United States has been issuing books that its editors know to be occult garbage. Why? The answer is obvious. Like worthless diet books, they make lots of money. I am sure I speak for everyone in CSICOP when I say we are all firmly opposed to government, at any level, telling publishers what they can't print. There are, however, moral issues involved. Just as publishers have the democratic freedom to print books that mislead and do harm, so we citizens have the freedom to express ethical outrage.

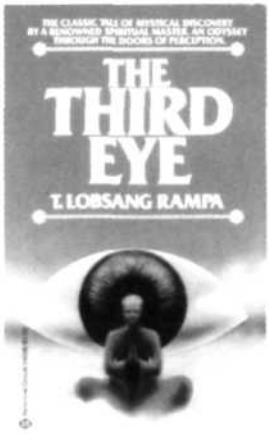
Hundreds of shabby books could be cited as examples, but I'll confine this column to just one, because it has an amusing history and because it ties in with one of the craziest of New Age fads—using acupuncture to arouse memories of previous lives. In Shirley MacLaine's latest autobiography, *Dancing in the Light,* she tells about her treatment in a village near Sante Fe by Chris Griscom, a trance medium who also practices acupuncture. (This is not the book I will be attacking; Shirley's four autobiographies have redeeming merit as works of fiction.) Shirley writes:

> The yoga tantra tradition maintained that there was unlimited energy locked in the central nervous system located along the spinal column. . . . If it is released, it flows up and down the spine. Along the way it passes through the seven centers of energy (chakkras) that govern various functions of the body. The chakkras, they say, are the knots of centered energy by which the soul is connected to the body.
>
> With yoga and proper meditational techniques, the energy at the base of the spine (*kundalini* energy) can be aroused until it moves up through each chakkra dissolving the knots binding the soul until it reaches the brain and a feeling of the liberation of the soul is achieved.

In most people, Shirley continues, the seven chakras (I adopt the conventional spelling with one *k*) are "closed," permitting "only the barest amount of vibrational current necessary for functioning. The person is walled into himself and sees the world from a closed and limited perspective. When the chakkra centers are opened, he sees with a more unlimited vision."

To open Shirley's chakras, Chris followed the instructions of her spirit guides, the principal one being an ancient Chinese acupuncturist. He was, Shirley assures us, "always present when she [Chris] worked." After Chris went into her meditation, and her guides took over, Shirley felt frigid air blow over her body. This, she says, "always accompanies the presence of a spiritual guide in the room."

Chris began her treatment by inserting three thin gold needles into Shirley's *ajna chakra*—more popularly known as the Third Eye—and then twirling them gently. "You have scar tissue in here," said Chris. "Your Third Eye is holding some



Ballantine's sixteenth printing of Rampa's hoax book still gives no hint that it was exposed as a fraud 30 year ago.

Time magazine's article on the hoax.

traumatic pain."

Shirley recalls that when she visited an Inca museum in Lima, Peru, she walked by a glass case containing several skulls. Each skull had a hole in the center of its forehead.

> The museum keeper had not even needed to tell me that the Inca high priests had chiseled holes in the center of the forehead to open up the psychic energy of the Third Eye. The Third Eye is an especially sensitized area for spiritual awareness. Clairvoyant capacity, perceptive levels of discernment, the eye of God are supposed to center in the Third Eye. It is the eye that "sees" beyond the earth-plane dimension.

Soon Chris was pushing needles into Shirley's other chakras—at her shoulders, ears, chest, under her chin, and below her navel. Shirley doesn't say whether Chris poked a needle into her *muladhara chakra*, located between the anus and the genitals. In Eastern religions and theosophical traditions, psychic energy is often pictured as a serpent coiled asleep at the base of the spine in the *muladhara chakra*. Charles W. Leadbeater, a famous British theosophist, wrote an entire book about the chakras in 1921. You can learn still more about them in the recent popular books on kundalini by Gopi Krishna.

In Eastern occult traditions, the Third Eye is usually associated with the pineal gland, a small gland about the size of a pea that lies behind the forehead. (Sometimes the Third Eye is also related to the nearby pituitary gland.) The philosopher René Descartes, following an ancient belief, thought that the pineal gland was the seat of the soul. In certain reptiles, fish, and amphibians, the gland is light-sensitive and probably was an actual eye in some prehistoric reptiles. In humans it is a vestigial organ, like the appendix, of no known use. It is often conjectured

that psi powers originate in the Third Eye. In recent years, vague efforts have been made to tie it somehow into the holographic theory of the brain.

When Shirley's Third Eye was "opened" by needles, she began to have colorful visions of her previous lives. This notion that spiritual awareness can be heightened by probing the Third Eye is looked down upon by almost all leading gurus of Eastern religions, as well as by theosophists, but in 1956 the notion got a tremendous boost from one of the most sensational best-sellers of this century's occult mania. I refer to *The Third Eye,* by T. (for Tuesday) Lobsang Rampa—not to be confused with Ramtha, one of Shirley's spirit guides.

Rampa claimed to be a Tibetan monk. On his eighth birthday, his superiors opened his Third Eye. The curious instrument they used was made of steel, resembling a bradawl, except it was U-shaped, with little teeth around the U's edge. After sterilizing it in a flame, Rampa wrote, one of the lamas "pressed the instrument to the center of my forehead and rotated the handle. . . . There was a little jolt as the end hit the bone. He applied more pressure. . . . There was a little 'scrunch' and the instrument penetrated the bone. . . . Suddenly there was a blinding flash. . . ."

"You are now one of us, Lobsang," the lama said. "For the rest of your life you will see people as they are and not as they pretend to be."

"It was a very strange experience," Lobsang rambles on, "to see these men apparently enveloped in a golden flame. Not until later did I realize that their auras were golden because of the pure life they led. . . ."

The operation gave Rampa enormous psi powers. He was able to diagnose diseases from the shapes and colors of human auras. His book swarms with such wonders as levitation, Abominable Snowmen, and a visit to see the mummy of one of his previous incarnations. Astral (out-of-body) traveling is something anyone can easily learn, he wrote, but levitation takes lots of practice. He claimed to have been an advisor to the Dali Lama, a medical officer in China, and a prisoner in a Russian and in a Japanese concentration camp.

A long list of Lobsang's blunders about life in Tibet aroused the suspicion of a group of British skeptics. After some fancy detective work they discovered that Tuesday Lobsang was one Cyril Henry Hoskin, the son of a Devon plumber. While a clerk in London, Hoskin had shaved his head, grown a beard, donned Chinese robes, changed his name to Kuan Suo, and had begun hack writing for magazines. In 1956, a literary agent persuaded him that his manuscript on the history of women's corsets wouldn't sell, but that his Third Eye fantasy would. Hoskin had never been near Tibet, though later he claimed that, when an accident injured his head, his body was taken over by the spirit of a Tibetan lama. *Time* magazine exposed all this in an article titled "Private v. Third Eye" (February 17, 1958). It printed a photograph of Hoskin, taken when he was ailing in a house near Dublin. His totally bald head showed no sign of a scar.

After learning of the hoax, Hoskin's British publisher at once canceled plans for Hoskin's next book. A spokesman for Doubleday, his U.S. publisher, was less forthcoming: "We expected that people would think it good reading, but not necessarily true." This is a frequent rationalization by publishers of occult-trash.

T. Lobsang Rampa, age 70, shuffled off to his next incarnation in 1981, when he died at a hospital in Calgary, Canada. He and his wife had become Canadian citizens to escape high British taxes on his royalties. The 1956 hoax had no discernible effect on the sales of some 18 subsequent whoppers. Most of them are still in print in the United States, including such inspiring works as *My Visit to*

Venus and *You Forever*. I don't know whether you can still buy Rampa's Meditation Kit. It contained such useful things as a Tibetan robe, incense and burner, and an LP record of Tibetan chants.

Now comes the main point of this column. In 1964 Ballantine Books (a subsidiary of Random House) reissued *The Third Eye,* and they have kept it in print ever since. A copy I bought a few months ago is identified as the sixteenth (May 1986) printing. In his 1964 foreword Rampa dismisses all the charges against him as the product of "vicious hatred" by enemies. "Let me again state that everything I have written in my books is true. All my claims are true."

The cover of the Ballantine paperback is reproduced on page 30. There is not a line, on the front or back cover, or inside, to let poor, gullible, hole-in-the-head readers know that the book is a fraud from beginning to end. Ballantine has, of course, broken no laws. Dare we hope, however, that its editors and blurb writers feel at least a few twinges of conscience over letting sheer greed override all sense of honesty and fairness? •

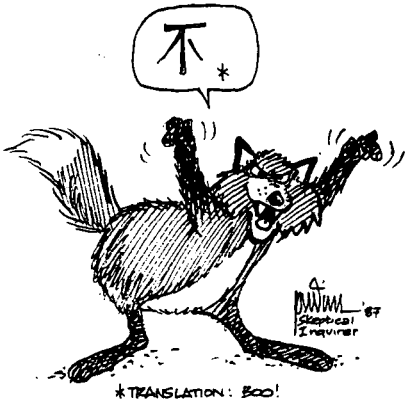
ROBERT SHEAFFER

Psychic Vibrations

IT IS A TIME-HONORED custom for travelers returning from distant and exotic lands to tell wondrous tales. James McClenon did great honor to this tradition in describing his investigations into "Spirits and Science in Taiwan" in *Fate* (November 1986). Shih Chaou-Rin, a researcher with the Chinese Parapsychological Society, claimed to be able to psychically alter the data on a floppy diskette. Like Uri Geller, he held the object to be "psychically" altered in his hands and shouted out words of encouragement—whether to himself or to the magnetically encoded data, it is not clear. On his fifth try, the data were found to have been altered from their original state. McClenon comments that "the experiment could have been more controlled than it was." Shih then attempted to bend a spoon, under close scrutiny, without apparent success. After a "considerable time" passed, "many other observers had stopped watching Shih closely," and McClenon left the room to make a phone call. Upon his return, it was discovered that the spoon was bent!

Other investigations by Taiwanese parapsychologists found that "hypnotism was related to extrasensory perception" and that there is a link between UFOs and "psychic phenomena."

Psychologist C. K. Wang uses "spiritual therapies" to treat certain diseases that are believed to be caused by "fox spirits." The victim of such a disease is a sort of werewolf-in-reverse, a fox that becomes human and whose spirit may possess a person. In this Wang is assisted by the wife of a local physician, a psychic who can sniff out "fox spirits."



From this article, it is clear that the Taiwanese are at least as accomplished as anyone in the realm of parascience. This admittedly may not be much, but their best psychics must be every bit as entertaining as Uri Geller. The next time you hear some alarmist cry out that we are falling behind the Soviets in a "Psi Gap," you can breathe a sigh of relief that these powerful Taiwanese psychics and Shamans are on *our* side!

* * * * *

To judge by the number of alleged miracles being reported within the past year or so, those subversive books that sneaky secular humanists have infiltrated into our libraries, like the *The Wizard of Oz* and *The Diary of Anne Frank*, are failing to have much effect. Outside Fostoria, Ohio, hundreds of people have been assembling by the roadside to see an image of Christ on the side of a soybean-oil

storage tank. They claim to see the life-sized image of a long-haired, bearded man, with the profile of a child alongside. The company that owns the tank says they are seeing just shadows, lights, and steam vapors from the soybean processing plant.

In St. Petersburg, Florida, the image of a cross on an apartment balcony's concrete floor, which allegedly appeared spontaneously, has been hailed as a miracle by several Antiochian Orthodox priests. Their faith is not shaken by the fact that the previous resident of the apartment says the image was created by her son by spray painting around a cross placed on the floor. She has even produced a cross exactly matching the image to prove it. The "miraculous" image of the cross, along with about two square feet of concrete, has been removed by the congregation of the St. Nicholas Orthodox Mission for preservation as a religious relic.

In Chicago, as many as 5,000 people a day have stood patiently in line in wintry weather for a glimpse of the alleged "weeping virgin" portrait in the St. Nicholas Albanian Orthodox Church. According to the parish priest, the Greek Orthodox Archdiocese investigated the icon and decided that the tears were no hoax.

In Cairo, repeated apparitions of the Virgin Mary "clad in light" are allegedly being seen over a Coptic Orthodox church by the faithful. Even in Leningrad —a city whose rulers are decidedly secular, although certainly not humanist— pilgrims seeking miracles are flocking to a small unmarked chapel in the old Smolensk Cemetery. The body of a saintly eighteenth-century woman known only as "Ksenya" lies inside, and the faithful come with flowers and votive candles, pinning up notes asking for divine assistance: "Help me find a one-room apartment," or "Help me finish fifth grade." Since presumably *all* books in the Leningrad Public Library reflect the USSR's official philosophy of materialism and yet a widespread belief in miracles persists, would-be textbook-yankers can breathe a sigh of relief. Even the many volumes on Marxism in Leningrad schools and libraries do not threaten the survival of religious belief.

* * * * *

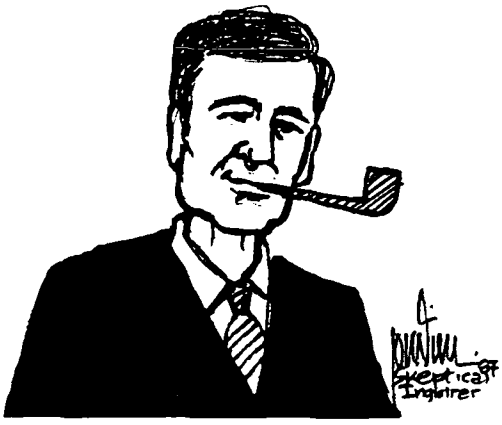
According to a story by the Associated Press, doctors who treated the late pop artist Andy Warhol have strongly criticized the chiropractic "massage therapy" he received a few days before his death. On February 14, Warhol complained to his physician of an abdominal ache. A sonogram revealed his gallbladder to be enlarged, but not badly infected. This condition had first been diagnosed 14 years earlier. On February 16, he visited a chiropractor and afterward complained of sharp pains caused by the "massage," which he described as a "mashing" of his already enlarged gallbladder. A sonogram taken February 19 revealed the organ to be severely infected and, when it was surgically removed two days later, it was found to be gangrenous. The following day, Warhol died. His physicians noted cautiously that his gallbladder condition may have worsened for reasons unrelated to the massage.

* * * * *

The celebrated semi-mysterious UFOlogist James Moseley, of Key West, Florida, not far from the Bermuda Triangle, published the following remarkable item concerning that strange cult known as "The Church of the Sub-Genius" in a recent issue of his semi-legendary newsletter *Saucer Smear*. This church, he begins,

> worships an entity called "Bob" Dobbs, who is (or was?) a smiling, cleancut-looking young fellow, always pictured smoking a pipe. "Bob," like God, is everywhere. . . . We were recently invited

by another of 'Bob's' ministers to a party in Miami, at an art gallery called Wet Paint. The scene was out of the 1960s in many ways, with a rock band attempting to play on the roof. The young people attending were not all aware of "Bob," but seemed for the most part to be harmless latter-day hippies doing their thing, peacefully and pleasantly. Unfortunately, a disgruntled group who had caused trouble at a previous party, showed up suddenly with rocks, baseball bats, home-made fire bombs, and some sort of shotgun loaded with blanks. Those of us gathered on the front lawn at the time hurried inside amid the sound of shots, etc. After these intruders quickly left, the band decided to come down off the roof and set up again inside the gallery; but before they had gotten very far into the first set, the same disgruntled group returned and set the house on fire! Your fearless editor, attempting to build a bucket brigade, got splashed all over with wet paint (get it?) when someone handed him a paint bucket filled with water. Police and firemen arrived quickly, the band disbanded, and the party was over. No one was hurt, but the evening was washed out.



In the next issue of *Saucer Smear,* Moseley says that one of Bob's ministers in Miami informed him afterward that the fire at the party that night was *not* the work of vandals but a "spontaneous appearance" of Bob! As difficult as it may be to believe this account, skeptic that I am, I harbor not the slightest doubt that everything happened exactly as Moseley says. •

SPREAD THE WORD!

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The Burden of Skepticism

Carl Sagan

WHAT IS SKEPTICISM? It's nothing very esoteric. We encounter it every day. When we buy a used car, if we are the least bit wise we will exert some residual skeptical powers—whatever our education has left to us. You could say, "Here's an honest-looking fellow. I'll just take whatever he offers me." Or you might say, "Well, I've heard that occasionally there are small deceptions involved in the sale of a used car, perhaps inadvertent on the part of the salesperson," and then you do something. You kick the tires, you open the doors, you look under the hood. (You might go through the motions even if you don't know what is supposed to be under the hood, or you might bring a mechanically inclined friend.) You know that some skepticism is required, and you understand why. It's upsetting that you might have to disagree with the used-car salesman or ask him questions that he is reluctant to answer. There is at least a small degree of interpersonal confrontation involved in the purchase of a used car and nobody claims it is especially pleasant. But there is a good reason for it—because if you don't exercise some minimal skepticism, if you have an absolutely untrammeled credulity, there is probably some price you will have to pay later. Then you'll wish you had made a small investment of skepticism early.

Now this is not something that you have to go through four years of graduate school to understand. Everybody understands this. The trouble is, a used car is one thing but television commercials or pronouncements by presidents and party leaders are another. We are skeptical in some areas but unfortunately not in others.

For example, there is a class of aspirin commercials that reveals the competing product to have only so much of the painkilling ingredient that doctors recommend most—they don't tell you what the mysterious ingredient is—whereas *their* product has a dramatically larger amount (1.2 to 2 times

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Carl Sagan is the David Duncan Professor of Astronomy and Space Sciences and Director of the Laboratory for Planetary Studies at Cornell University. Author of many best-selling science books and winner of a Pulitzer Prize, he is one of the foremost science popularizers of our time. He is a CSICOP Fellow and recipient of CSICOP's 1987 In Praise of Reason Award. This article is excerpted from his keynote address at CSICOP's annual conference in Pasadena, California, April 3-4, 1987.

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more per tablet). Therefore you should buy their product. But why not just take two of the competing tablets? You're not supposed to ask. Don't apply skepticism to this issue. Don't think. Buy.

Such claims in commercial advertisements constitute small deceptions. They part us from a little money, or induce us to buy a slightly inferior product. It's not so terrible. But consider this:

I have here the program of this year's Whole Life Expo in San Francisco. Twenty thousand people attended last year's program. Here are some of the presentations: "Alternative Treatments for AIDS Patients: It will rebuild one's natural defenses and prevent immune system breakdowns—learn about the latest developments that the media has thus far ignored." It seems to me that presentation could do real harm. "How Trapped Blood Proteins Produce Pain and Suffering." "Crystals, Are They Talismans or Stones'" (I have an opinion myself.) It says, "As a crystal focuses sound and light waves for radio and televison"—crystal sets are rather a long time ago—"so may it amplify spiritual vibrations for the attuned human." I'll bet very few of you are attuned. Or here's one: "Return of the Goddess, a Presentational Ritual." Another: "Synchronicity, the Recognition Experience." That one is given by "Brother Charles." Or, on the next page, "You, Saint-Germain, and Healing Through the Violet Flame." It goes on and on, with lots of ads about "opportunities"—ranging from the dubious to the spurious—that are available at the Whole Life Expo.

* * * * *

If you were to drop down on Earth at any time during the tenure of humans you would find a set of popular, more or less similar, belief systems. They change, often very quickly, often on time scales of a few years: But sometimes belief systems of this sort last for many thousands of years. At least a few are always available. I think it's fair to ask why. We are *Homo sapiens.* That's the distinguishing characteristic about us, that *sapiens* part. We're supposed to be smart. So why is this stuff always with us? Well, for one thing, a great many of these belief systems address real human needs that are not being met by our society. There are unsatisfied medical needs, spiritual needs, and needs for communion with the rest of the human community. There may be more such failings in our society than in many others in human history. And so it is reasonable for people to poke around and try on for size various belief systems, to see if they help.

For example, take a fashionable fad, channeling. It has for its fundamental premise, as does spiritualism, that when we die we don't exactly disappear, that some part of us continues. That part, we are told, can reenter the bodies of human and other beings in the future, and so death loses much of its sting for us personally. What is more, we have an opportunity, if the channeling contentions are true, to make contact with loved ones who have died.

Speaking personally, I would be delighted if reincarnation were real. I lost my parents, both of them, in the past few years, and I would love to have a

little conversation with them, to tell them what the kids are doing, make sure everything is all right wherever it is they are. That touches something very deep. But at the same time, precisely for that reason, I know that there are people who will try to take advantage of the vulnerabilities of the bereaved. The spiritualists and the channelers better have a compelling case.

Or take the idea that by thinking hard at geological formations you can tell where mineral or petroleum deposits are. Uri Geller makes this claim. Now if you are an executive of a mineral exploration or petroleum company, your bread and butter depend on finding the minerals or the oil; so spending trivial amounts of money, compared with what you usually spend on geological exploration, this time to find deposits psychically, sounds not so bad. You might be tempted.

Or take UFOs, the contention that beings in spaceships from other worlds are visiting us all the time. I find that a thrilling idea. It's at least a break from the ordinary. I've spent a fair amount of time in my scientific life working on the issue of the search for extraterrestrial intelligence. Think how much effort I could save if those guys are coming here. But when we recognize some emotional vulnerability regarding a claim, that is exactly where we have to make the firmest efforts at skeptical scrutiny. That is where we can be had.

Now, let's reconsider channeling. There is a woman in the State of Washington who claims to make contact with a 35,000-year-old somebody, "Ramtha"—he, by the way, speaks English very well with what sounds to me to be an Indian accent. Suppose we had Ramtha here and just suppose Ramtha is cooperative. We could ask some questions: How do we know that Ramtha lived 35,000 years ago? Who is keeping track of the intervening millennia? How does it come to be exactly 35,000 years? That's a very round number. Thirty-five thousand plus or minus what? What were things like 35,000 years ago? What was the climate? Where on Earth did Ramtha live? (I know he speaks English with an Indian accent, but where was that?) What does Ramtha eat? (Archaeologists know something about what people ate back then.) We would have a real opportunity to find out if his claims are true. If this were really somebody from 35,000 years ago, you could learn a lot about 35,000 years ago. So, one way or another, either Ramtha really is 35,000 years old, in which case we discover something about that period—that's before the Wisconsin Ice Age, an interesting time—or he's a phony and he'll slip up. What are the indigenous languages, what is the social structure, who else does Ramtha live with—children, grandchildren—what's the life cycle, the infant mortality, what clothes does he wear, what's his life expectancy, what are the weapons, plants, and animals? Tell us. Instead, what we hear are the most banal homilies, indistinguishable from those that alleged UFO occupants tell the poor humans who claim to have been abducted by them.

Occasionally, by the way, I get a letter from someone who is in "contact" with an extraterrestrial who invites me to "ask anything." And so I have a list of questions. The extraterrestrials are very advanced, remember. So I ask things like, "Please give a short proof of Fermat's Last Theorem." Or the

Goldbach Conjecture. And then I have to explain what these are, because extraterrestrials will not call it Fermat's Last Theorem, so I write out the little equation with the exponents. I never get an answer. On the other hand, if I ask something like "Should we humans be good?" I always get an answer. I think something can be deduced from this differential ability to answer questions. Anything vague they are extremely happy to respond to, but anything specific, where there is a chance to find out if they actually know anything, there is only silence.

The French scientist Henri Poincaré remarked on why credulity is rampant: "We also know how cruel the truth often is, and we wonder whether delusion is not more consoling." That's what I have tried to say with my examples. But I don't think that's the only reason credulity is rampant. Skepticism challenges established institutions. If we teach everybody, let's say high school students, the habit of being skeptical, perhaps they will not restrict their skepticism to aspirin commercials and 35,000-year-old channelers (or channelees). Maybe they'll start asking awkward questions about economic, or social, or political, or religious institutions. Then where will we be?

Skepticism is dangerous. That's exactly its function, in my view. It is the business of skepticism to be dangerous. And that's why there is a great reluctance to teach it in the schools. That's why you don't find a general fluency in skepticism in the media. On the other hand, how will we negotiate a very perilous future if we don't have the elementary intellectual tools to ask searching questions of those nominally in charge, especially in a democracy?

I think this is a useful moment to reflect on the sort of national trouble that could have been avoided were skepticism more generally available in American society. The Iran/Nicaragua fiasco is so obvious an example I will not take advantage of our poor, beleaguered president by spelling it out. The Administration's resistance to a Comprehensive Test Ban Treaty and its continuing passion for blowing up nuclear weapons—one of the major drivers of the nuclear arms race—under the pretense of making us "safe" is another such issue. So is Star Wars. The habits of skeptical thought CSICOP encourages have relevance for matters of the greatest importance to the nation. There is enough nonsense promulgated by both political parties that the habit of evenhanded skepticism should be declared a national goal, essential for our survival.

* * * * *

I want to say a little more about the burden of skepticism. You can get into a habit of thought in which you enjoy making fun of all those other people who don't see things as clearly as you do. This is a potential social danger present in an organization like CSICOP. We have to guard carefully against it.

It seems to me what is called for is an exquisite balance between two conflicting needs: the most skeptical scrutiny of all hypotheses that are served up to us and at the same time a great openness to new ideas. Obviously those

two modes of thought are in some tension. But if you are able to exercise only one of these modes, which ever one it is, you're in deep trouble.

If you are only skeptical, then no new ideas make it through to you. You never learn anything new. You become a crochety old person convinced that nonsense is ruling the world. (There is, of course, much data to support you.) But every now and then, maybe once in a hundred cases, a new idea turns out to be on the mark, valid and wonderful. If you are too much in the habit of being skeptical about everything, you are going to miss or resent it, and either way you will be standing in the way of understanding and progress.

On the other hand, if you are open to the point of gullibility and have not an ounce of skeptical sense in you, then you cannot distinguish the useful ideas from the worthless ones. If all ideas have equal validity then you are lost, because then, it seems to me, no ideas have any validity at all.

Some ideas are better than others. The machinery for distinguishing them is an essential tool in dealing with the world and especially in dealing with the future. And it is precisely the mix of these two modes of thought that is central to the success of science.

Really good scientists do both. On their own, talking to themselves, they churn up huge numbers of new ideas, and criticize them ruthlessly. Most of the ideas never make it to the outside world. Only the ideas that pass through a rigorous self-filtration make it out and are criticized by the rest of the scientific community. It sometimes happens that ideas that are accepted by everybody turn out to be wrong, or at least partially wrong, or at least superseded by ideas of greater generality. And, while there are of course some personal losses—emotional bonds to the idea that you yourself played a role in inventing—nevertheless the collective ethic is that every time such an idea is overthrown and replaced by something better the enterprise of science has benefited. In science it often happens that scientists say, "You know that's a really good argument; my position is mistaken," and then they actually change their minds and you never hear that old view from them again. They really do it. It doesn't happen as often as it should, because scientists are human and change is sometimes painful. But it happens every day. I cannot recall the last time something like that has happened in politics or religion. It's very rare that a senator, say, replies, "That's a good argument. I will now change my political affiliation."

* * * * *

I would like to say a few things about the stimulating sessions on the Search for Extraterrestrial Intelligence (SETI) and on animal language at our CSICOP conference. In the history of science there is an instructive procession of major intellectual battles that turn out, all of them, to be about how central human beings are. We could call them battles about the anti-Copernican conceit.

Here are some of the issues:

- *We are the center of the Universe. All the planets and the stars and the*

Sun and the Moon go around us. (Boy, must we be something *really* special.) That was the prevailing belief—Aristarchus aside—until the time of Copernicus. A lot of people liked it because it gave them a personally unwarranted central position in the Universe. The mere fact that you were on Earth made you privileged. That felt good. Then along came the evidence that Earth was just a planet and that those other bright moving points of light were planets too. Disappointing. Even depressing. Better when we were central and unique.

- *But at least our Sun is at the center of the Universe.* No, those other stars, they're suns too, and what's more we're out in the galactic boondocks. We are nowhere near the center of the Galaxy. Very depressing.
- *Well, at least the Milky Way galaxy is at the center of the Universe.* Then a little more progress in science. We find there isn't any such thing as the center of the Universe. What's more there are a hundred billion other galaxies. Nothing special about this one. Deep gloom.
- *Well, at least we humans, we are the pinnacle of creation. We're separate. All those other creatures, plants and animals, they're lower. We're higher. We have no connection with them. Every living thing has been created separately.* Then along comes Darwin. We find an evolutionary continuum. We're closely connected to the other beasts and vegetables. What's more, the closest biological relatives to us are chimpanzees. *Those* are our close relatives —*those* guys? It's an embarrassment. Did you ever go to the zoo and watch them? Do you know what they do? Imagine in Victorian England, when Darwin produced this insight, what an awkward truth it was.

There are other important examples—privileged reference frames in physics and the unconscious mind in psychology—that I'll pass over.

I maintain that in the tradition of this long set of debates—every one of which was won by the Copernicans, by the guys who say there is not much special about us—there was a deep emotional undercurrent in the debates in both CSICOP sessions I mentioned. The search for extraterrestrial intelligence and the analysis of possible animal "language" strike at one of the last remaining pre-Copernican belief systems:

- *At least we are the most intelligent creatures in the whole Universe.* If there are no other smart guys elsewhere, even if we *are* connected to chimpanzees, even if we *are* in the boondocks of a vast and awesome universe, at least there is still something special about us. But the moment we find extraterrestrial intelligence that last bit of conceit is gone. I think some of the resistance to the idea of extraterrestrial intelligence is due to the anti-Copernican conceit. Likewise, without taking sides in the debate on whether other animals—higher primates, especially great apes—are intelligent or have language, that's clearly, on an emotional level, the same issue. If we define humans as creatures who have language and no one else has language, at least we are unique in that regard. But if it turns out that all those dirty, repugnant, laughable chimpanzees can also, with Ameslan or otherwise, communicate ideas, then what is left that is special about us? Propelling emotional predispositions on these issues are present, often unconsciously, in scientific debates. It is important to realize that scientific debates, just like pseudoscien-

tific debates, can be awash with emotion, for these among many different reasons.

Now, let's take a closer look at the radio search for extraterrestrial intelligence. How is this different from pseudoscience? Let me give a couple of real cases. In the early sixties, the Soviets held a press conference in Moscow in which they announced that a distant radio source, called CTA-102, was varying sinusoidally, like a sine wave, with a period of about 100 days. Why did they call a press conference to announce that a distant radio source was varying? Because they thought it was an extraterrestrial civilization of immense powers. That is worth calling a press conference for. This was before even the word "quasar" existed. Today we know that CTA-102 is a quasar. We don't know very well what quasars are; and there is more than one mutually exclusive explanation for them in the scientific literature. Nevertheless, few seriously consider that a quasar, like CTA-102, is some galaxy-girdling extraterrestrial civilization, because there are a number of alternative explanations of their properties that are more or less consistent with the physical laws we know without invoking alien life. The extraterrestrial hypothesis is a hypothesis of last resort. Only if everything else fails do you reach for it.

Second example: British scientists in 1967 found a nearby bright radio source that is fluctuating on a much shorter time scale, with a period constant to ten significant figures. What was it? Their first thought was that it was something like a message being sent to us, or an interstellar navigational beacon for spacecraft that ply the spaces between the stars. They even gave it, among themselves at Cambridge University, the wry designation LGM-1—Little Green Men, LGM. However (they were wiser than the Soviets), they did not call a press conference, and it soon became clear that what we had here was what is now called a "pulsar." In fact it was the first pulsar, the Crab Nebula pulsar. Well, what's a pulsar? A pulsar is a star shrunk to the size of a city, held up as no other stars are, not by gas pressure, not by electron degeneracy, but by nuclear forces. It is in a certain sense an atomic nucleus the size of Pasadena. Now that, I maintain, is an idea at least as bizarre as an interstellar navigational beacon. The answer to what a pulsar is has to be something mighty strange. It isn't an extraterrestrial civilization, it's something else; but a something else that opens our eyes and our minds and indicates possibilities in nature that we had never guessed at.

Then there is the question of false positives. Frank Drake in his original Ozma experiment, Paul Horowitz in the META (Megachannel Extraterrestrial Assay) program sponsored by the Planetary Society, the Ohio University group and many other groups have all had anomalous signals that make the heart palpitate. They think for a moment that they have picked up a genuine signal. In some cases we have not the foggiest idea what it was; the signals did not repeat. The next night you turn the same telescope to the same spot in the sky with the same modulation and the same frequency and bandpass, everything else the same, and you don't hear a thing. You don't publish that data. It may be a malfunction in the detection system. It may be a military

AWACS plane flying by and broadcasting on frequency channels that are supposed to be reserved for radio astronomy. It may be a diathermy machine down the street. There are many possibilities. You don't immediately declare that you have found extraterrestrial intelligence because you find an anomalous signal.

And if it were repeated, would you then announce? You would not. Maybe it's a hoax. Maybe it is something you haven't been smart enough to figure out that is happening to your system. Instead, you would then call scientists at a bunch of other radio telescopes and say that at this particular spot in the sky, at this frequency and bandpass and modulation and all the rest, you seem to be getting something funny. Could they please look at it and see if they get something similar? And only if several independent observers get the same kind of information from the same spot in the sky do you think you have something. Even then you don't know that the something is extraterrestrial intelligence, but at least you could determine that it's not something on Earth. (And that it's also not something in Earth orbit; it's further away than that.) That's the first sequence of events that would be required to be sure that you actually had a signal from an extraterrestrial civilization.

Now notice that there is a certain discipline involved. Skepticism imposes a burden. You can't just go off shouting "little green men," because you are going to look mighty silly, as the Soviets did with CTA-102, when it turns out to be something quite different. A special caution is necessary when the stakes are as high as here. We are not obliged to make up our minds before the evidence is in. It's okay not to be sure.

I'm often asked the question, "Do you think there is extraterrestrial intelligence?" I give the standard arguments—there are a lot of places out there, and use the word *billions,* and so on. And then I say it would be astonishing to me if there weren't extraterrestrial intelligence, but of course there is as yet no compelling evidence for it. And then I'm asked, "Yeah, but what do you really think?" I say, "I just told you what I really think." "Yeah, but what's your gut feeling?" But I try not to think with my gut. Really, it's okay to reserve judgment until the evidence is in.

* * * * *

After my article "The Fine Art of Baloney Detection" came out in *Parade* (Feb. 1, 1987), I got, as you might imagine, a lot of letters. Sixty-five million people read *Parade.* In the article I gave a long list of things that I said were "demonstrated or presumptive baloney"—thirty or forty items. Advocates of all those positions were uniformly offended, so I got lots of letters. I also gave a set of very elementary prescriptions about how to think about baloney —arguments from authority don't work, every step in the chain of evidence has to be valid, and so on. Lots of people wrote back, saying, "You're absolutely right on the generalities; unfortunately that doesn't apply to my particular doctrine." For example, one letter writer said the idea that intelli-

gent life exists outside the earth is an excellent example of baloney. He concluded, "I am as sure of this as of anything in my experience. There is no conscious life anywhere else in the Universe. Mankind thus returns to its rightful position as center of the Universe."

Another writer again agreed with all my generalities, but said that as an inveterate skeptic I have closed my mind to the truth. Most notably I have ignored the evidence for an Earth that is six thousand years old. Well, I haven't ignored it; I considered the purported evidence and *then* rejected it. There is a difference, and this is a difference, we might say, between prejudice and postjudice. Prejudice is making a judgment before you have looked at the facts. Postjudice is making a judgment afterwards. Prejudice is terrible, in the sense that you commit injustices and you make serious mistakes. Postjudice is not terrible. You can't be perfect of course; you may make mistakes also. But it is permissible to make a judgment after you have examined the evidence. In some circles it is even encouraged.

* * * * *

I believe that part of what propels science is the thirst for wonder. It's a very powerful emotion. All children feel it. In a first grade classroom everybody feels it; in a twelfth grade classroom almost nobody feels it, or at least acknowledges it. Something happens between first and twelfth grade, and it's not just puberty. Not only do the schools and the media not teach much skepticism, there is also little encouragement of this stirring sense of wonder. Science and pseudoscience both arouse that feeling. Poor popularizations of science establish an ecological niche for pseudoscience.

If science were explained to the average person in a way that is accessible and exciting, there would be no room for pseudoscience. But there is a kind of Gresham's Law by which in popular culture the bad science drives out the good. And for this I think we have to blame, first, the scientific community ourselves for not doing a better job of popularizing science, and second, the media, which are in this respect almost uniformly dreadful. Every newspaper in America has a daily astrology column. How many have even a weekly astronomy column? And I believe it is also the fault of the educational system. We do not teach how to think. This is a very serious failure that may even, in a world rigged with 60,000 nuclear weapons, compromise the human future.

I maintain there is much more wonder in science than in pseudoscience. And in addition, to whatever measure this term has any meaning, science has the additional virtue, and it is not an inconsiderable one, of being true. •

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This is the first of four articles on medical controversies in this issue.

Chiropractic: A Skeptical View

Spinal manipulation can be useful, but chiropractic's theoretical basis is a strange and never-demonstrated notion of subluxations.

William Jarvis

CHIROPRACTIC is the most significant nonscientific health-care delivery system in the United States. As a result of their high level of organization and aggressiveness, chiropractors are licensed to practice in all 50 states and several foreign countries. Chiropractic is so well entrenched that it must be viewed as a societal problem, not simply as a competitor of regular health-care.

"Chiropractic" literally means "done by hand" (*chiros* = hand; *praktos* = practice), referring to manipulation of the spine. Manipulation (i.e., "the forceful, passive movement of a joint beyond its active limit of motion," according to *Dorland's Illustrated Medical Dictionary*) is not the exclusive domain of chiropractors. Folk practitioners sometimes called "bonesetters" have long used the notion of bones "going out of place" to explain maladies, and they employ manipulation as a panacea. Andrew Taylor Still invented "osteopathy" based upon the theory that luxated bones interfere with blood circulation, producing all manner of diseases. (Osteopathy officially abandoned Still's theory in 1948.)

Today, physiotherapists, athletic trainers, and several medical specialists sometimes employ manipulation for neuromusculoskeletal conditions. There is sufficient evidence that manipulation can at least temporarily improve the range of motion of impaired joints and relieve pain—sometimes dramatically—to make it a worthwhile, albeit limited, medical procedure. Manipulation

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requires a good deal of individual skill, which many chiropractors apparently possess.

History

Chiropractic's uniqueness is not in its use of manipulation but in its theoretical basis for doing so—which also explains why chiropractors overutilize spinal manipulation therapy (SMT), often applying it without justification.

Chiropractic is the brainchild of Daniel D. Palmer, a late-nineteenth-century dabbler in metaphysical approaches to health care. Palmer had practiced phrenology and magnetic healing, and had some osteopathic training. He reported that a spiritualist medium inspired him in his search for "the single cause of all disease." He puzzled over the fact that pathogenic germs were found in both healthy and sick people and searched for an explanation. (Today, we know that the immune system makes the difference.) He claimed that one day in 1895 he restored the hearing of janitor Harvey Lillard and experienced an illumination that the spine was the key to health and disease.

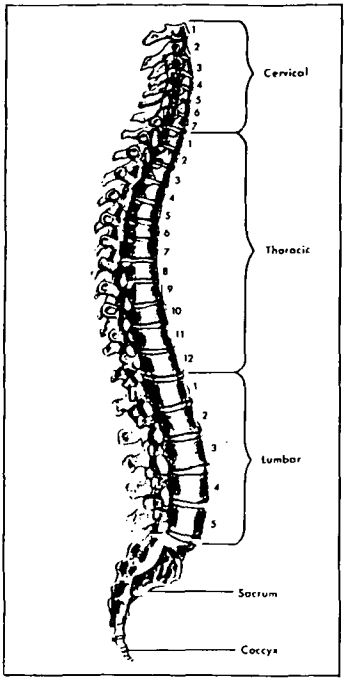
Unique Theory

Palmer contrived the notion that "subluxations" of the spine impinge nerves, interfering with nerve flow, which he dubbed the Innate Life Force, and that all a practitioner had to do was to adjust the spine—the healing powers of nature would do the rest. Neither Palmer nor any other chiropractor has ever been able to reliably demonstrate the existence of "subluxations," much less validate their importance to health and disease. Nevertheless, chiropractic has grown and thrived and boasts of 24,000 practitioners nationally.

When chiropractors are challenged to explain precisely what effect nerve impingement is supposed to have upon a nerve impulse (i.e., frequency of propagation, amplitude, etc.), they either fall back upon metaphysical notions of the Innate Life Force or evoke one of many common ploys: (1) make a virtue of their ignorance by retorting that they don't know how it works but that it does; (2) claim that studies to determine the mechanism are now under way or just completed but unpublished (the "Oh, haven't you heard? You're behind the times!" ploy); or (3) do as the American Chiropractic Association has done—evade the issue by officially changing the rhetoric and adding uncertainties: "Disease *may* be caused by disturbances of the nervous system. . . . Disturbances of the nervous system *may* be caused by derangements of the musculoskeletal structure. . . . Disturbances of the nervous system *may* cause or aggravate disease in various parts or functions of the body. . . ." (ACA 1984, pp. 8-9). They do this while continuing to practice as if subluxations were an established reality.

Lack of Validity of Chiropractic Theory

A comprehensive critique of chiropractic's lack of scientific validity was writ-



ten by the College of Physicians and Surgeons of the Province of Quebec (1966) in 1963 and remains relevant today. In 1973, Yale University anatomist Edmund Crelin demonstrated that subluxations severe enough to impinge upon the nerves exiting the spinal foramina were impossible to produce without total disablement. Crelin (1985) states in *Examining Holistic Medicine* that instead of the scientific response of attempting to replicate his research, the ACA wrote a tirade of verbiage, concluding that his work was invalid because it was done on cadavers. In fact, Crelin states, the absence of a reflex response in a dead body should make subluxations easier to produce. Faced with this evidence, a true-believing chiropractor once remarked to me that the reason Crelin had failed to demonstrate the chiropractic hypothesis was that he worked with cadavers in which Innate Life Force was no longer present!

An excuse chiropractors employed for years for the lack of scientific evidence for their theory was that the government wouldn't provide the necessary research funding. The falsity of this claim was exposed in 1972, when the International Chiropractic Association reported (ICA 1972) that the federal government had approved a grant for Dr. Suh, at the University of Colorado, to develop a method for measuring spinal configurations to determine the existence of chiropractic subluxations and that the grant *application* was the *first* in chiropractic's history.

Scott Haldeman, D.C., M.Sc., Ph.D., M.D., a third-generation chiropractor whose personal commitment to validating chiropractic led him to obtain a medical degree and advanced degrees in neurophysiology, has criticized Suh's and others' attempts "to find more accurate ways of measuring a subluxation in the absence of any solid data that the subluxation is worth

measuring" (Haldeman 1977). Although providing chiropractic public relations personnel with fodder for a decade, Suh's work on the illusive subluxation never got anywhere and now seems fruitless at best.

Lack of Clinical Reliability

Apologists have some room for defensive debate because of the difficulty of establishing mechanisms of cause and effect in many other fields of science. An easier and more practical test of chiropractic is that of the reliability (i.e., consistency) of chiropractors' clinical ability to identify subluxations. They have not fared well in these tests.

Smith (1969) visited the Palmer Clinic in Davenport, Iowa, and the National College Clinic at Lombard, Illinois, on two successive days. At Palmer he was told that he had subluxations at the ninth dorsal and the fifth lumbar; at National a subluxation was diagnosed at the fifth dorsal only. Neither found other subluxations alleged by another chiropractor earlier.

Stephen Barrett (1980) "sent a healthy four-year-old girl to five chiropractors for a 'check up.' The first said the child's shoulder blades were 'out of place' and found 'pinched nerves to her stomach and gall bladder.' The second said the child's pelvis was 'twisted.' The third said one hip was 'elevated' and that spinal misalignments could cause 'headaches, nervousness, equilibrium or digestive problems' in the future. The fourth predicted 'bad periods and rough childbirth' if her 'shorter left leg' were not treated. The fifth not only found hip and neck problems, but also 'adjusted them' without bothering to ask permission." Completely inconsistent findings were also diagnosed in two adult women.

Mark L. Brown, a reporter for the *Quad City Times,* serving the Davenport, Iowa, area, conducted his own five-month investigation of the practice of chiropractic. He produced an insightful 36-page Sunday newspaper supplement (available from the National Council Against Health Fraud, Inc.[1]) revealing some bizarre as well as some useful practices. Brown also found numerous inconsistencies, including diagnoses that his left leg was shorter than his right leg and vice versa!

Isolation

Chiropractors commonly blame others for their lack of science, claiming to have been isolated by organized medicine. In reality, chiropractic's isolation is self-imposed. Chiropractors substitute chiropractic philosophy for science and commonly boast of intellectual superiority. True-believers say that someday the world will acknowledge the greatness of chiropractic. It would be impossible for chiropractors who adhere to chiropractic theory and philosophy to work with scientific health-care providers. Chiropractors' concepts of the causes and treatments of disease differ radically; and, although health scientists worldwide can bridge barriers of language and culture via the common ground of basic science, they cannot work with pseudoscientists.

There is considerable concern about the wisdom of permitting chiropractors to serve as entry-level health-care providers. Practitioners devoted to a pseudoscientific approach to disease are apt to miss serious diseases when hearing patient complaints. Reformist chiropractor Peter Modde states that malpractice is an inevitable result of chiropractic training and philosophy.

How widely the subluxation theory is believed among chiropractors is uncertain. Quigley attempted to measure this in 1981. Eighty-eight percent of 268 responding chiropractors gave subluxations in musculoskeletal problems an importance of 70 percent or more. Sixty percent of 265 respondents gave subluxations in visceral disorders a rating of 70 percent or more (Quigley 1981). Even less is known about the proportion of chiropractors who believe in the metaphysical Innate Life Force.

Factionalism

Chiropractic has become a conglomeration of factions in conflict, bound together only by opposition to outside critics. At least a dozen different notions about how the spine should be corrected divide practitioners. Some say only the Atlas needs adjusting; others go to the other end of the spine and say only the sacral area is important. Still others use both ends (sacro-occipital). Several adhere to specific vertebral levels for specific organs or diseases. Some measure leg lengths or test muscles—called "applied kinesiology" (A-K)—for weakness or strength in association with foods, colors, music, and just about anything else. (Even A-K's originator expressed skepticism about the technique being used to determine one's personal star.)

The most obvious rift among chiropractors is between "straights" and "mixers." Straights adhere more to chiropractic's original theory and practice, while "mixers" (a term applied by the straights and abhorred by the mixers) may incorporate almost any modality into their practices. The ICA is the straights' national organization, and the ACA represents mixers.

The utter confusion within chiropractic over subluxations, scope of practice, and other important health-care issues was rediscovered by the U.S. Department of Health and Human Services' Office of Inspector General (OIG) in 1986. According to its report: "Heated controversy regarding chiropractic theory and practice continues to exist. . . . On-site and telephone discussions with chiropractors and their schools and associations, coupled with a review of background materials . . . result in a picture of a profession in transition and containing a number of contradictions. . . . There continues to be some disagreement within the profession regarding which conditions are appropriate for chiropractic care and regarding appropriate parameters for treatment."

The OIG investigators also made note of "the problem side of chiropractic." The report states: "Despite the evidence which was presented during the study regarding the increased emphasis on science and professionalism . . . there also exist patterns of activity and practice which at best appear as overly aggressive marketing and, in some cases, seem deliberately aimed at

misleading patients and the public regarding the efficacy of chiropractic care."

There are also chiropractors who practice rational, conservative spinal manipulative therapy for neuromusculoskeletal disorders. They do not claim to be alternative practitioners but offer their skills as manipulation therapists when such treatment is medically justifiable. What proportion of chiropractors fit this description is unknown. The National Association of Chiropractic Medicine (NACM) was formed in 1984 as an attempt to organize reform-minded chiropractors. There may be a substantial number of rational chiropractors "in the closet," in which case our view of chiropractic may be distorted by the hucksters and zealots among the guild.

Evaluating Individual Chiropractors

Because of the great diversity among chiropractors, it is impossible to evaluate individual practitioners according to the commonly advanced straights/mixers dichotomy. There is a common misconception that straights are old-fashioned (i.e., unscientific) and mixers are modern (i.e., scientific). Although straights may be labeled "cultists" for adhering to Palmer's dogma, the additional modalities mixers employ are apt to be just as nonscientific. Mixers utilize colonics, iridology, unproven devices, applied kinesiology (muscle-testing), megavitamins, herbology, crystals, variations of acupuncture, glandular therapy, craniopathy, and a seemingly endless array of dubious diagnostic, prescription, and therapy procedures.

Of course those who use questionable methods can be rejected as untrustworthy on that basis alone, but because chiropractors are very philosophical, individuals can be challenged on the basis of *why* they manipulate. True-believer chiropractors would be loath to admit that their ministrations are so mundane as to deal with effects rather than basic causes. This topples them from their imagined dominance as "the true physicians" to merely therapists. Rational chiropractors will readily admit that SMT relieves *effects* not *causes*. The fact that they mainly provide temporary somatic relief, rather than dealing with the causal factors of disorders, is evidenced by the large amount of repeat business they generate. Too frequent treating is a factor noted by nearly every commission that has evaluated chiropractic. Third-party payers commonly control chiropractic costs by limiting the number of treatments or the annual amount for which devotees may receive reimbursement.

Individual chiropractors may also be judged according to their opposition or endorsement of scientifically established public-health practices, such as fluoridation, immunization, pasteurization, and modern food technology. Chiropractors are often in the forefront of anti-scientific social movements opposing such practices.

Patient Loyalty

Despite its appalling lack of science, chiropractic has a loyal following of clients. I believe this can be credited to the somatic relief of SMT and the

psychological aspects of chiropractic care. SMT involves the laying on of hands, which reportedly has the effect of relaxing the patient. The laying on of hands also is said to increase suggestibility, which enhances the placebo effects of SMT. Reformer Samuel Homola, D.C. (1963) says:

> The majority of the "subluxations" commonly found by many chiropractors are likely to be painless and imaginary. In replacing these imaginary subluxations, the practitioner places his hands upon the patient's back and applies a sudden thrust, causing the bones to come together, making a noise like the "crushing of an old basket." This thrust, with "popping" of the vertabrae, has a tremendous psychological influence over the mind of the healthy patient as well as over the mind of the sick patient. While the popping sound itself is quite meaningless . . . (such as "cracking" the knuckles) . . . this influence might be used to advantage in curing psychosomatic conditions—provided the patient is informed that the bone is "back-in-place" and will stay there. By the same token, however, such treatment used on the mentally unstable and nervous person can cause a great deal of harm; that is, by perpetuating a psychosomatic condition or even creating a new psychological illness.

Thus Homola points out that the placebo effect is not without potential for harm. By experiencing relief, the patient is *taught* illness through operant conditioning. In addition to the direct physical effects Homola describes, chiropractors engage in a great deal of verbal conditioning. Manipulation itself can feel good (although it can also be painful) and can be addictive, according to reformer Charles DuVall, D.C. (1984).

Chiropractors have been shown to be better at satisfying patients than medical doctors are. This is because they validate patients' problems medical doctors tend to minimize, offer simplistic explanations about health and disease, and work at being friendly. Chiropractic also offers both a mechanistic and a metaphysical explanation for its effects, appealing to both needs. Chiropractic rhetoric has adapted itself to contemporary favors of "holistic" health-care. In fact, chiropractic is not holistic but spine-centered, but this seems to escape notice.

Selling Chiropractic

Success promoters who give seminars to train chiropractors in psychological patient manipulation are a notorious problem within chiropractic. I study a wide variety of health pseudosciences, but I know of no other guild that has formalized the education of practitioners in patient deception. While many of the procedures taught are simply good office practice, many others are fraudulent. (See Barrett 1980.)

Former ACA public-relations consultant Eric Baizer says the ACA conducts an aggressive public-relations program aimed at selling chiropractors as family doctors and primary-care providers. Baizer (1983) describes how as a PR expert he defended chiropractic publicly by responding to negative press reports. He says he employed stock answers and reusable clichés—what one writer termed "factoids" (i.e., statements designed to *resemble* facts). "For

example," Baizer wrote, "if someone attacked the quality of chiropractic education, we would point out that chiropractors attended colleges accredited by an agency recognized by the U.S. Office of Education—*implying* that the schools must be of high quality. How good is the chiropractic curriculum? How qualified are the instructors? Are inspections of the colleges thorough? These are the kinds of issues best left unexplored."

Survival of a Pseudoscience

The illusionary "subluxation" not only is the theoretical basis for chiropractic but constitutes its legal basis as well. State acts describe chiropractic as the finding and removal of subluxations. It is enigmatic that such a system thrives late in the twentieth century, which has seen such progress in the biological sciences and health care. While biological scientists have unraveled the genetic double-helix, chiropractors have failed to scientifically define their theory or scope of practice, or to justify their very existence as primary health-care providers.

Chiropractic's survival and success is undoubtedly due to the reality that there is much more involved in health-care delivery than science. Politics, business considerations, and the clinical art often take precedence. Although it is the scientific validity of the methods employed that justifies modern health-care, in practical terms of survival in the marketplace, chiropractic demonstrates daily that the scientific aspects of health care are of least importance and in *greatest need of protection.*

The chiropractic guild is adept at having its way with politicians. This appears to be primarily due to its applications of business law to the health marketplace. Chiropractors pose themselves as competitors of "allopathic medicine" (a misnomer, since allopathic medicine, which employed bleeding, purging, and so forth, to balance the four Greek humors, was replaced long ago with the emergence of medical science). Unfortunately, regular medicine is regarded by many legislators as simply holding another opinion among differing viewpoints. Chiropractors encourage the concept that they are a separate but equal health-care delivery system. They find allies among those who present science as merely "Western thought" and find the Innate Life Force notion compatible with Eastern metaphysical world-views.

Politicians seem to have trouble differentiating between religious beliefs and beliefs in various forms of health care. Chiropractic's clientele is loyal, and its political clout is greater than that of its critics. Patients willingly cooperate with chiropractors when asked to send letters to lawmakers. Many subscribe to the myth of a vindictive medical profession out to crush its opposition.

In the final analysis, the validity of chiropractic is not a medical controversy as much as one of the basic biological sciences. Medicare reimburses chiropractors with millions of taxpayers' dollars each year for removing subluxations allegedly demonstrated by X-rays. Basic biological scientists have a public duty to objectively test a theory as radical as chiropractic's to

determine if it is valid. The failure to require scientific validation of an entire health-care delivery system sets a disturbing precedent for other nonscientific systems to lay claim to the public purse. Transcendental meditators are trying to qualify for reimbursement in New Zealand, and Christian Science practitioners are paid for faith-healing in this country. Chiropractic and other nonscientific forms of health care will survive until the public demands that scientific justification become a primary qualification for legalization and reimbursement.

Note

1. The National Council Against Health Fraud, Inc., has published a position paper on chiropractic. A single.copy may be obtained free by sending a stamped, addressed business-sized envelope to NCAHF, P.0. Box 1276, Loma Linda, CA 92354.

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Homeopathy: Is It Medicine?

Homeopathy is regaining some of its earlier popularity. Is there anything to it? Does it work?

Stephen Barrett, M.D.

DURING THE PAST few years, increasing numbers of homeopathic remedies have been offered for sale in health-food stores and elsewhere. Their promoters suggest that they are safe, effective, natural remedies that have no side effects. This report summarizes the year-long investigation of homeopathy I conducted on behalf of *Consumer Reports* magazine.

Homeopathy's Roots

Homeopathy dates back to the late 1700s, when Samuel Hahnemann (1755-1843), a German physician, began formulating its basic principles. Hahnemann was justifiably distressed about bloodletting, leeching, purging, and other medical procedures of his day that did far more harm than good. He was also critical of medications like calomel (mercurous chloride), which was given in doses that caused mercury poisoning. He then developed his "law of similars" —that the symptoms of disease can be cured by substances that produce similar symptoms in healthy people. The word *homeopathy* is derived from the Greek words *homeo* (similar) and *pathos* (suffering or disease).

Although ideas like this had been espoused by Hippocrates in the fourth century B.C., and by Paracelsus, a fifteenth-century physician, Hahnemann was the first to use them in a systematic way. He and his early followers conducted "provings," in which they administered herbs, minerals, and other substances to healthy people, including themselves, and kept detailed records of what they observed. Later these records were compiled into lengthy refer-

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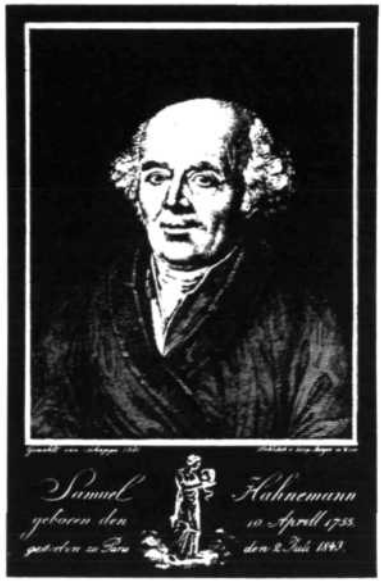


ence books called *materia medica,* which are used to match a patient's symptoms with a "corresponding" drug.

Hahnemann believed that diseases represent a disturbance in the body's ability to heal itself and that only a small stimulus is needed to begin the healing process. In line with this—and to avoid toxic side-effects—he experimented to see how little medication could be given and still cause a healing response. At first he used small doses of accepted medications. But later he used enormous dilutions and concluded that the smaller the dose, the more powerful the effect—a principle he called the "law of infinitesimals."

That, of course, is just the opposite of what pharmacologists believe today. As summarized in the 1977 report of an Australian Parliament committee of inquiry: "For each [drug] property, there is a clearly defined dose-response relationship in which increasing the dose increases the effect. . . . There is not one example in the whole area of pharmacology in which simple dilution of a drug enhances the response it produces any more than diluting a dye can produce a deeper hue, or adding less sugar can make food sweeter."

Homeopathy's Remedies

Homeopathic drugs are prepared as follows: If the medicinal substance is soluble, one part is diluted in either 9 or 99 parts of a water and/or alcohol solution and shaken vigorously; if insoluble, it is finely ground and pulverized in similar proportions with powdered lactose (milk sugar). One part of the diluted medicine is diluted, and the process is repeated until the desired concentration is reached. Dilutions of 1 to 10 are designated by the Roman numeral X (1X = 1/10, 2X = 1/100, 3X = 1/1,000, 6X = 1/1,000,000).

Similarly, dilutions of 1 to 100 are designated by the Roman numeral C (1C = 1/100, 2C = 1/10,000, 3C = 1/1,000,000, and so on). Most remedies today range from 6X to 30X.

According to the laws of chemistry, there is a limit to the dilution that can be made without losing the original substance altogether. This limit, called "Avogadro's number" (6.023×10^{23}), corresponds to homeopathic potencies of 12C or 24X (1 part in 10^{24}). Hahnemann himself realized there is virtually no chance that even one molecule of original substance would remain after extreme dilutions. But he believed that the vigorous shaking or pulverizing with each step of dilution leaves behind a spiritlike essence that cures by reviving the body's "vital force." Hahnemann's theories have never been accepted by scientifically oriented physicians, who charge that homeopathic remedies are placebos (inert substances).

Because homeopathic remedies were actually less dangerous than those of nineteenth-century medical orthodoxy, many medical practitioners began using them. At the turn of the century, homeopathy had some 14,000 practitioners and 22 schools in the United States alone. But as medical science and medical education advanced, homeopathy declined sharply, particularly in America, where its schools either closed or converted to modern methods. The last pure U.S. homeopathic school closed during the 1920s, but Hahnemann Medical College in Philadelphia continued to offer homeopathic courses on an elective basis until the late 1940s. A few graduates from other modern medical and osteopathic schools later became homeopaths by taking courses here or abroad or by training with a practicing homeopath.

Homeopathic remedies were given legal status by the 1938 Federal Food, Drug, and Cosmetic Act, which was shepherded through Congress by Senator Royal Copeland (D-N.Y.), a prominent homeopathic physician. One provision of this law recognized as drugs all substances included in the *Homeopathic Pharmacopeia.* Now in its ninth edition, this book lists more than 1,000 substances and the historical basis for their inclusion: not modern scientific testing, but homeopathic "provings" conducted as long as 150 years ago.

Today's Marketplace

The 1985 directory of the National Center for Homeopathy, in Washington, D.C., lists some 300 licensed practitioners, half of them physicians and the rest mostly chiropractors, naturopaths, dentists, veterinarians, and nurses. But Jay P. Borneman, of Swarthmore, Pennsylvania, whose family has been marketing homeopathic remedies since 1910, believes that several hundred more consider themselves homeopaths and that many conventional physicians utilize one or a few homeopathic remedies for specific conditions. Larger numbers of homeopaths practice in England, France, India, Germany, the Soviet Union, and several other countries where homeopathy is more popular.

Laypersons are also involved in practicing homeopathy. Some operate offices, which may not be legal. A few unaccredited schools have offered correspondence courses leading to certificates or "degrees" in homeopathy.

Consumers interested in homeopathic self-treatment can obtain guidance through lay study groups, books, and courses sponsored by the National Center for Homeopathy.

Most homeopathic practitioners still rely on *materia medica* in choosing among the thousands of remedies available. But a few utilize computerized electrical devices that they claim can help match the remedies to the patient's diseased organs. "Classical" homeopaths—who follow Hahnemann's methods closely—take an elaborate history of the patient to fit the remedy to the individual. The history typically includes standard medical questions plus many more about such things as emotions, moods, food preferences, and reactions to the weather. The remedy for symptoms on one side of the body may differ from that for identical symptoms on the other side. Classical homeopaths prescribe one substance at a time, while nonclassical homeopaths may prescribe several.

Homeopathic remedies are available from practitioners, health-food stores, and drugstores, as well as manufacturers who sell directly to the public. A few products are sold person-to-person through multilevel marketing companies. Home-remedy kits are available from several companies. Jay Borneman believes that U.S. sales of homeopathic products probably total no more than $15 million a year, with half of these made by five companies that have been in business for 75 to 150 years.

According to FDA officials, homeopathic remedies used to be marketed on a small scale by these five companies, mainly to serve the needs of licensed practitioners. "These drugs bore little or no labeling for consumers because they were intended for use by homeopathic physicians who would make a diagnosis and either compound a prescription, dispense the product, or write a prescription to be filled at a homeopathic pharmacy," says William G. Nychis, the FDA's expert on homeopathy. "The pharmacies also sold a limited number of nonprescription homeopathic products. During the past decade, however, the homeopathic marketplace has changed drastically. New firms have entered the field and sold all sorts of products through health food stores and directly to consumers."

Jay Borneman readily admits that "there is a lot of insanity operating under the name of homeopathy in today's marketplace. Companies not committed to homeopathy's principles have been marketing products that are unproven, untested, not included in the *Homeopathic Pharmacopeia,* and combination products that have no rational or legal basis. Some are simply quack products called homeopathic for marketing purposes."

Perhaps the most blatant promotion was that of Biological Homeopathic Industries, Albuquerque, New Mexico, which in 1983 sent a 123-page catalogue to almost 200,000 physicians nationwide. Among its products were BHI Anticancer Stimulating, BHI Antivirus, BHI Stroke, and 50 other types of tablets claimed to be effective against serious diseases. In 1984, the FDA forced the company to stop distributing several of the products and to tone down its claims for the rest.

In September 1985, agents of the FDA and the Pennsylvania Health

Department seized some $125,000 worth of drugs sold person-to-person by Probiotic, Inc., of Reading, and Homerica, Inc., a subsidiary. The products were labeled "Skin Relief," "Human Power Recharger," and "Pain Control" and did not state what they were for, what was in them, or how to use them.

At least ten other companies offer questionable homeopathic remedies for over-the-counter sale. Some product examples are: Arthritis Formula, Bleeding, Kidney Disorders, Flu, Herpes, Exhaustion, Whooping Cough, Gonorrhea, Heart Tonic, Gall-Stones, Cardio Forte, Thyro Forte, and Worms.

Homeopathy's Legal Status

In most states, homeopathy can be practiced by any physician or other practitioner whose license includes the ability to prescribe drugs. Three states—Arizona, Nevada, and Connecticut—have separate homeopathic licensing boards. The Nevada situation is notable because some of its practitioners acquired licenses as homeopaths after other states revoked their medical licenses for cancer quackery.

Arizona's licensing boards are subject to "sunset" review, which means they will be abolished unless reauthorized by the Arizona legislature. Last year, as the expiration date for the homeopathy board drew near, the state's homeopaths joined forces with health-food stores to lobby vigorously. To counter the idea that a board might not be needed because there were only a handful of homeopaths in the state, the American Institute of Homeopathy (a group of about 100 classical homeopathic physicians) urged its members to apply for licensure in Arizona "to show that there are doctors interested in practicing homeopathy today." According to the National Health Federation, a health-food-industry group that helped with the campaign, close to 2,000 supporters attended hearings and state legislators got hundreds of handwritten letters supporting homeopathic licensing. The reauthorization bill passed unanimously.

Public protection regarding drugs is based on a framework of federal laws and regulations that require drugs to be safe, effective, and properly labeled. But the FDA has not applied this framework to homeopathic remedies. Since most homeopathic remedies contain no detectable amount of active ingredient, it is impossible to test whether they contain what their labels say. They have been presumed safe, but unlike most other drugs, they have not been proved effective against disease by scientific means, such as by double-blind testing. If the FDA were to require such proof for homeopathic drugs to remain on the market, the industry would not survive unless it could persuade Congress to change the law.

The American Association of Homeopathic Pharmacists, a group of leading homeopathic manufacturers, has proposed that homeopathic remedies remain marketable without a prescription for minor ailments that do not require complex medical diagnosis or medical monitoring. Traditional homeopathic remedies used for the treatment of serious diseases would be available by prescription only from physicians and others authorized by state laws to

prescribe drugs. The FDA is considering this proposal and hopes to issue a policy guide for homeopathic products in the near future.

In January 1986, the North Carolina Board of Medical Examiners revoked the license of George A. Guess, M.D., the state's only licensed homeopathic physician, after concluding that he was "failing to conform to the standards of acceptable and prevailing medical practice." (In May 1987, a county court judge overturned this decision, but the Board has appealed to a higher court.) Dr. Guess is a 1973 graduate of the Medical College of Virginia and was board-certified in family practice from 1976 through 1983. But in 1978 he began practicing homeopathy. During hearings held by the Board, another family practitioner testified that although Dr. Guess is intelligent and well trained in orthodox medicine, "homeopathy is not medicine. It's something else."

Most pharmacy-school educators seem to feel the same way. Last year I sent a questionnaire to the deans of all 72 U.S. pharmacy schools. Faculty members from 49 schools responded. Most said their school either doesn't mention homeopathy at all or considers it of historical interest only. Hahnemann's "law of similars" did not find a single supporter, and all but one respondent said his "law of infinitesimals" was wrong also. Almost all said that homeopathic remedies were neither potent nor effective, except possibly as placebos for mild, self-limited ailments. About half felt that homeopathic remedies should be completely removed from the marketplace.

Homeopathic Research

Probably the best review of homeopathic research is the two-part article by A. M. Scofield, Ph.D., a British biochemistry professor. In the *British Homeopathic Journal* (73:161-180 and 73:211-226, 1984), he concludes: "Despite a great deal of experimental and clinical work there is only a little scientific evidence to suggest that homeopathy is effective. This is because of bad design, execution, reporting or failure to repeat promising experimental work and not necessarily because of the inefficacy of the system which has yet to be properly tested on a large enough scale. . . . It is hardly surprising, in view of the quality of much of the experimental work as well as its philosophical framework, that this system of medicine is not accepted by the medical and scientific community at large."

Scofield cautions against dismissing homeopathy simply because its underlying philosophy does not fit accepted scientific premises. Feeling that "some of the experimental work already done suggests that homeopathy may be of value," he recommends that carefully controlled experiments be done to test homeopathy further.

One apparently well designed study was published in the British journal *Lancet* on October 18, 1986. In this study 56 hay fever patients who received a homeopathic preparation of mixed grass pollens had fewer symptoms than a comparable group of 52 patients who received a placebo. Whether this type of finding can be consistently reproduced remains to be seen.

Overview

During my lengthy investigation, I was impressed by the warmth and sincerity of the homeopathic leaders I met. But the key question is whether homeopathy is effective.

Consumer Reports concluded in its January 1987 issue: "Unless the laws of chemistry have gone awry, most homeopathic remedies are too diluted to have any physiological effect. . . . CU's medical consultants believe that any system of medicine embracing the use of such remedies involves a potential danger to patients whether the prescribers are M.D.'s, other licensed practitioners, or outright quacks. Ineffective drugs are dangerous drugs when used to treat serious or life-threatening disease. Moreover, even though homeopathic drugs are essentially nontoxic, self-medication can still be hazardous. Using them for a serious illness or undiagnosed pain instead of obtaining proper medical attention could prove harmful or even fatal."

Homeopathic leaders insist that their remedies are effective and that studies *do* support this viewpoint. They also suggest that homeopathy's popularity and long survival are evidence that it works. But the only way for homeopathy to gain acceptance by the scientific community would be to demonstrate positive results through repeated experiments designed with the help of critics and carried out with strict safeguards against experimenter bias and fraud.

If the FDA required homeopathic remedies to be proved effective in order to remain on the market, homeopathy would face extinction in the United States. But no indication exists that the agency is considering this. FDA officials regard homeopathy as relatively benign and believe that other problems should get enforcement priority. Moreover, if the FDA attacks homeopathy too vigorously, its proponents might even persuade Congress to rescue them. On the other hand, some level of enforcement is needed to prevent the homeopathic marketplace from getting completely out of hand. •

Alternative Therapies

A report on an inquiry by the British Medical Association

Lewis Jones

If a person (a) is poorly, (b) receives treatment intended to make him better, and (c) gets better, then no power of reasoning known to medical science can convince him that it may not have been the treatment that restored his health.

Sir Peter Medawar, *The Art of the Soluble*

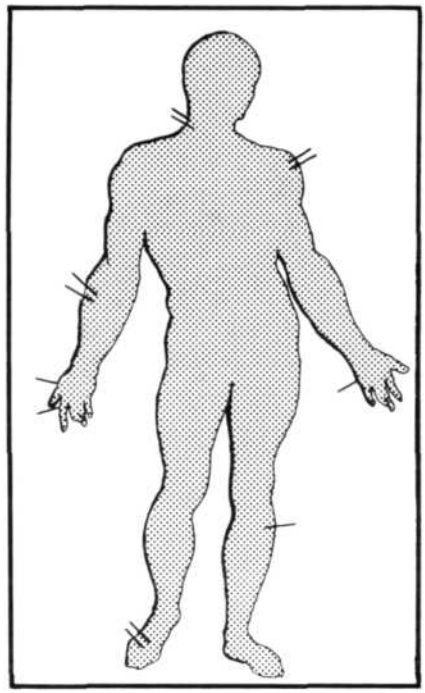
THERE HAS LONG BEEN a groundswell of opinion that "they" should do some proper testing of alternative therapies and give an official seal of approval to those that come through unscathed. So when the British Medical Association (BMA) decided to look into the matter officially, a number of hopes ran high.

When the Prince of Wales was president of the BMA (1982-1983), he criticized mainstream medicine: "By concentrating on smaller and smaller fragments of the body, modern medicine perhaps loses sight of the whole being, and by reducing health to a mechanical functioning it is no longer able to deal with the phenomenon of healing." And, according to a survey published in the *British Medical Journal* of July 30, 1983, about 80 of 100 general-practice trainees wanted to train in at least one form of alternative medicine, and about 20 had already used such a treatment.

The BMA set up an eight-man working committee that included a psychiatrist, two specialists in anesthesia, and three in pharmacology. Its exact charge was: "To consider the feasibility and possible methods of assessing the value of alternative therapies, whether used alone or to complement other treatments, and to report on the evidence received to the Board of Science and Education."

Information and evidence were invited from doctors and lay therapists

Lewis Jones is a writer and a member of the U.K. Skeptics.



who were using alternative methods of treatment. More than 600 responses were received, including many from people who had undergone treatment. Some individual therapists and organizations were asked to fill in a questionnaire and some gave oral evidence.

The report was completed in May 1986. More than half of its 160 pages are taken up by appendixes, and about 40 percent of what remains is devoted to a history of medicine over the past 25,000 years, plus a brief explanation of statistical measurement.

Why are some people turning toward alternative therapies? According to the BMA report: "It is particularly interesting that these criticisms of medicine should appear at a time when the great modern developments in rational therapeutics and in diagnostic techniques have revolutionized the effective treatment of many diseases and since the 1950s have greatly enhanced our expectations of medical science. These changes have altered also in significant and subtle ways the relation between patient and doctor. Relatively few years ago, when little therapeutic help could be offered, the physician devoted much time to counsel and to support the patient."

The report quotes a Council of Europe finding that the average alternative therapist spends eight times longer over a consultation than an average general practitioner. Many people long for the days when doctors were inclined to indulge in lengthy personal chats, and it is perhaps useful to be reminded that this was simply because there was often little else they could offer. It is ironic that today new diagnostic aids that can offer genuine medical help are likely to be regarded as "an intrusion juxtaposed between patient and physician."

Many people have forgotten that before World War II the number of effective drugs was perhaps no more than a dozen. Indeed, modern medical science has all but become a victim of its own success. "Almost as a consequence of the revolutionary developments in medicine," the report continues, "there is a voiced demand which is hardly rational for instant cures for the currently incurable diseases of mankind. In addition, there is detected ill-founded suspicion that nothing is being done to advance these pressing problems and little perception of the long-term nature of the painstaking research involved." Fear of medicine's very efficiency can also play a part in turning people away from it: "Patients who are afraid of organic disease, especially of a malignant nature, may prefer to go to an alternative therapist rather than a medical practitioner because they are afraid of what the orthodox diagnostic process might reveal."

The report sees two groups of patients of special relevance—those in whom no pathological condition can be found and those whose condition has no known cure: "Patients in both these groups may well feel that they have reached the limits of the benefits offered by orthodox medicine. Accordingly, they may suggest that their next best course of action is to consult an unorthodox practitioner."

From here, it is not a far step toward open hostility to the medical profession itself. The report cites three medical milestones: (1) Jenner's proof of vaccination against smallpox, (2) Pasteur's vaccine against rabies, and (3) the BCG (bacillus Calmette-Guérin) vaccine against tuberculosis. "Then, as now, their life-saving introduction was delayed by the vehement antagonism of the anti-vivisectionists. . . . But the history of vaccination cautions us that once again there will be conflict with those who oppose the animal experimentation essential to the development of these desirable advances in the medical control of bacterial, viral, and parasitic diseases of man. . . ."

A number of proponents of alternative therapies said that the effects they claimed were unique and could not be compared either with one another or with orthodox medicine. But the BMA committee disagreed: "This view was contrary to current experience with clinical trials of orthodox medicine and was not supported by the opinions of the experts we had consulted."

Do medical researchers not tend to dismiss unorthodox treatments prematurely, simply because the claimed mechanisms are unfamiliar to them? No, says the report: "The fact that some procedure was derived from a discredited system does not necessarily entail its lack of effect. . . . For the pragmatist, what matters first is outcome (Does it work?); establishing mechanism (how it works) comes second."

The issue is nothing new in conventional medicine. Aspirin was introduced in 1899, but it had to wait another 80 years before anyone knew it worked by inhibiting the enzyme responsible for prostaglandins. Viral illnesses were known and treated before the existence of viruses was suspected. And at this moment we still treat psychoses with drugs whose action we don't understand.

The report refers to its "index," though this is no more than the names of about 120 therapies listed alphabetically—there is no true index with page

references. There are some curious candidates: astrology, meditation, paranormal faculties, relaxation, and Alcoholics Anonymous. There are also a number of offbeat items: Backswing, Feldenkrais, Gerson treatment, Homeosiniatry, Lakhorsky apparatus, Mazdaznam, Pandorf vaccination, Samuels therapy, Spagnynics, Thure Brands treatment, Winkler treatment. The inquisitive reader seeking clarification will be disappointed. These esoterica do not appear within the text. They are merely listed, with no attempt at explanation or definition.

In fact, the BMA's committee received evidence for only about half of those listed. It then went on to ask for further oral evidence about six of these: group counseling/psychotherapy, acupuncture, homeopathy, hypnosis, osteopathy, and "healing" (presumably faith-healing). Some examples:

Acupuncture

According to the report: "Controlled trials [of acupuncture] have only been conducted on a few conditions, including musculoskeletal diseases such as low back pain, the frozen-joint syndrome, osteoarthritis, and some forms of facial pain and headaches. In chronic painful syndromes about 10-15 percent of patients whose condition is intractable to conventional pain therapy claim acupuncture gives subjective relief.

"However, two-thirds of these do not show objective evidence of reduced analgesic drug intake or increased activity. . . . The evidence indicates that acupuncture may be useful in a small proportion of patients, but that it is by no means universally effective.

"Practitioners who use acupuncture within the framework of orthodox diagnosis and disease classification believe it exerts an analgesic effect mainly by stimulating the release of neurochemical mediators, in particular, endorphins, which are morphinelike compounds. There is now considerable experimental evidence which supports this view."

The confidence in the endorphin "explanation" of acupuncture analgesia is not shared by Petr Skrabanek in *Examining Holistic Medicine* (ed. Douglas Stalker and Clark Glymour, Prometheus Books, 1985): "There is no good evidence that acupuncture-induced pain relief is mediated by endorphin release. There is no correlation between plasma endorphin levels and pain; even patients with beta-endorphin levels 300 to 600 times the normal had no impairment of sensitivity to pain. Intravenous injections of beta-endorphin have no analgesic effect on man."

Homeopathy

The BMA report states that, after the death of Samuel Hahnemann (the founder of homeopathy), "his disciples set up the tablets of stone and thereafter denied the need for change." But in fact "there is no rational basis for the potency theory which is claimed to explain the mode of action of homeopathic remedies. . . . It appears that a placebo effect is the explanation of the

When Harm Follows

DISCUSSIONS of alternative therapies are often restricted to the simple question, "Do they work or not?" with the implication that answers can only fall into one of the two categories. But there is an ominous third category that receives little public attention. A misconceived therapy can not only fail but can also cause damage. Instances of this are scattered through the British Medical Association report like a recurring alarm bell.

Acupuncture needles have been found combined with kidney stones and have had to be surgically removed from the chest and abdomen. "The 365 traditional [acupuncture] points run near, some perilously so, to vital structures, and complications ranging from the minor to the serious and the fatal have been reported."

Asepsis and sterile practice are thought to be aims rather than routine procedures, making acupuncture yet another all-too-possible way of transmitting the AIDS virus. A patient with a replacement heart valve developed subacute bacterial endocarditis after auricular acupuncture. In Birmingham, an outbreak of infectious hepatitis was traced to an acupuncturist. And in the Far East, particularly for backache, "the needle may be inserted and actually severed near the handle, so that the patient may retain about 20-30 needles in the back for life."

Herbal medicines can produce adverse reactions, and treatment may interfere with the action of orthodox medicines. Some Chinese herbal remedies contain powerful drugs, in quantities that are neither assessed nor labeled. In Britain, the drinking of herbal tea has been known to lead to deaths from fulminant hepatic fever. According to the BMA report, the basic ingredients of herbal mixtures are sometimes wrongly identified: recently, herbal medicines contaminated with belladonna have caused atropine poisoning. And, says the report, "many herbal mixtures, particularly those formulated in accordance with Asian customs, also contain nonherbal substances, such as arsenic, mercury, tin, zinc, or lead."

In vertebral manipulations, the report continues, some of the main dangers to life are "the rheumatoid neck, and the neurological or vascular changes characterized by vertigo and 'drop attacks' for which only a negative arteriogram can provide the safeguard against the dangers of a basilar artery thrombosis on manipulation." Complications can result in paralysis or sudden death.

The current edition of the *Textbook of Orthopedic Medicine* lists 21 reports of spinal cord and vascular damage; 14 of these were specifically after chiropractic manipulation.

In the report "Osteopathic Manipulation Resulting in Spinal Cord Damage" (*British Medical Journal,* 291 (1985):1, 540), the author points out that in the previous 12 months "spinal manipulation has been the commonest cause of 'traumatic' sub-acute cervical cord compression requiring surgery at the Maida Vale branch of the National Hospital for Nervous Diseases."

—*L.J.*

belief, shared by homeopaths and their patients, in the efficacy of homeopathic therapeutics." [For more on homeopathy see Stephen Barrett's article, pp. 56-62 of this issue.]

Hypnotherapy

In 1955, the BMA Psychological Medicine Group Committee had already recommended hypnosis along with conventional therapy for anesthesia and in the treatment of some psychological disorders. For the present report, the president of the British Society of Experimental and Clinical Hypnosis submitted the text of a lecture: "Hypnosis Is Not 'Alternative Medicine.' "

The National Council of Psychotherapists and Hypnotherapy Register said in evidence: "We would not be in practice if we did not have long-term effects. People come to us and they bring their children to us, saying, 'You helped us many years ago; my son or daughter has this problem.' "

The BMA committee had "no doubt that hypnotherapy can benefit some patients" and echoed the view that hypnosis should only be used by doctors, dentists, and psychologists—a view not surprisingly put forward also by the president of the British Society for Medical and Dental Hypnosis.

Osteopathy and Chiropractic

Most osteopaths who gave evidence "considered organic diseases and vertebral problems to be causally related, and to be influenced beneficially by spinal manipulation." The BMA committee reports: "We could detect no physiopathological basis for these theories." Nor was any scientific basis found for the chiropractors' theory of "subluxations" as a cause of general disease. In fact, "we can detect no substance in the theory that advances manipulation as a system of healing."

The BMA found no evidence that manipulation has effects other than the relief of pain. Nevertheless it is willing to regard the registered lay manipulator as providing a generally safe and helpful service, provided a medical diagnosis is made first. But their main worry is that, of the estimated 2,000 manipulators in Britain, only some hundreds have had any kind of formal instruction.

* * * * *

Petr Skrabanek writes that medicine is defenseless against the travesties of reason thrown up by irrational healing methods "because it lacks criteria for the demarcation of the absurd" (*Lancet,* April 26, 1986). It would be difficult to counter this contention with some of the material in the BMA report that apparently stems from an "open-minded" acceptance of partisan advocates.

But, for such things as appendicitis, stomach ulcers, and fractures, says the report, "none of the information given to the working party supports the use of any substitute for conventional medical care." Alternative therapies

should all aim at the same standard of evidence that is required for licensing a new drug, and that includes "animal studies when appropriate. . . . Clinical trials of a new drug commonly begin with advanced or intractable disease, and success there allows trials in patients with early disease. The evaluation of alternative therapy may need to parallel this progression."

This is not a report of the *testing* of alternative medicine that many will have hoped for. The BMA committee placed the onus for that where they feel it belongs—on the therapies themselves. "Thus, though the need for critical assessment of any treatment cannot be denied, and is in principle always possible, the practical difficulties are often formidable, requiring elaborate administrations involving many centers and much expense. It is therefore essential that the proponent of a treatment accept the onus of providing a good prima facie case if a formal trial is to be set up. If the case is made out, orthodox medicine will not exclude a treatment because its mode of action is not understood. There is thus no logical class of 'alternative therapies': there are only therapies with and without good evidence for their efficacy," concludes the report.

Time, touch, and compassion—these are features of all good medical practice, and exclusive to none. •

Quackery: The Need for Federal, State, and Local Response

The promotion of worthless medical schemes and remedies for profit is growing while efforts to control them are diminishing.

Claude Pepper

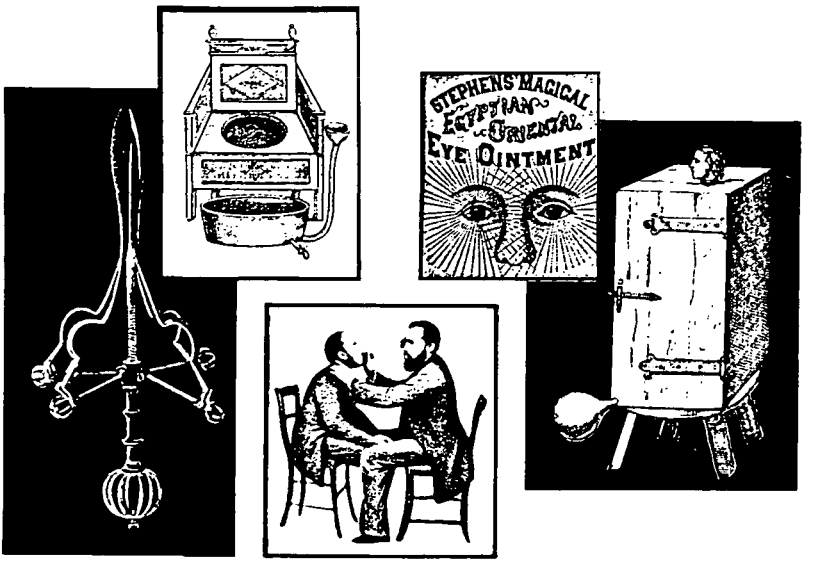
THROUGHOUT TIME, people desperate to improve their health or appearance have been willing to try almost anything, and those who supply the supposed remedies have shown boundless imagination.

The House Select Committee on Aging, of which I am a member and former chair, launched a full-scale investigation of health fraud back in 1980. We combed the relevant files of the U.S. Postal Service, the Food and Drug Administration, and the American Cancer Society. We examined all relevant literature on the problem that we could find. We spoke to senior-citizen groups about their experiences with bogus health products. And, with the help of postal investigators, we evaluated hundreds of magazine advertisements for questionable health products, actually sending away for those whose claims seemed too good to be true. These products were then analyzed with the help of cooperating medical and scientific experts across the country.

We were shocked to learn how widespread and costly quackery is in this country. In subsequent investigations, we have been dismayed to find that this massive problem is growing, while enforcement efforts to control it appear to be diminishing, and it now costs Americans an estimated $10 billion a year.

Almost every substance imaginable is being touted as a cure for cancer, including distilled water, seaweed extracts, ground-up diamonds (looking remarkably like sand), serums from urine and fecal matter, ground warts from horses, and coffee enemas.

Congressman Claude Pepper is chairman of the House Select Committee on Aging's Subcommittee on Health and Long-Term Care and chairman of the House Rules Committee.



Arthritis "cures" range from the venom of snakes and ants to honey, liver, and herbs. Arthritics have been advised to bury themselves in uranium-bearing soil, to sit in abandoned mine shafts, and to stand naked under 1,000-watt light-bulbs during a full moon—and to pay for the privilege. They have been wrapped in manure, soaked in mud, and bathed in cod liver oil, kerosene, peppermint oil, and even WD-40. Others have suggested splitting open a frog and rubbing it on the skin or sprinkling the afflicted area with "moon dust."

People have been told that they can eliminate wrinkles by filling them in with sand, that they can treat prostate problems by sitting on a light bulb, and that they can cure impotence by drinking gold solutions. In one of the most bizarre treatments, patients were asked to swallow raw gland concentrates correlating to the body part experiencing the illness; i.e., raw brain concentrates were sold as a cure for mental problems and heart concentrates were to be eaten raw to cure myocardial infarction and other heart conditions.

How the Quackery Problem Grew

That quackery is flourishing is attributable in part to the relaxed standards of the federal government. The Postal Service has historically had the largest impact in controlling health fraud, despite limited resources and the most restrictive legislative authority of the four federal agencies involved in controlling quackery. The Postal Service has the authority to protect the public from marketing schemes conducted through the mail. It systematically reviews potentially fraudulent health advertisements and products. It is the only agency that targets its resources to prevent health fraud on a continual basis. It is also the only agency that has effected criminal convictions for quackery.

The Food and Drug Administration (FDA) has the authority to prohibit the introduction of any food, drug, device, or cosmetic that is adulterated or misbranded, but it has no specific authority to address health-fraud problems.

The Federal Trade Commission (FTC) has the authority to prevent individuals and organizations from using deceptive acts and practices in commerce and has the power to prevent false advertisements of foods, drugs, and devices. However, the FTC's impact on quackery enforcement, regrettably, has been minimal.

On the state level, responsibility for controlling health fraud and quackery rests with the states' attorneys general, but according to the Aging Committee's 1984 study, quackery and health fraud are considered a low priority in comparison with violent crimes.

Quackery has become sophisticated and organized. The web of deceit has expanded to include foundations and clinics that advertise worthless cures, identify the desperate victims, and arrange the delivery of deceptive practices. (Some health-fraud practitioners even have their own travel agencies to arrange transportation to treatment centers.)

The Victims

Although Americans of all ages fall prey to health fraud, senior citizens are the most vulnerable because their health needs are greater. They are sick three times as often and three times as long as younger people. Their per capita medical expenses are about three times as high. Many have chronic conditions, like arthritis, for which treatment through conventional means is only partly successful.

While the health needs of older people are greater, their resources are often restricted. Many have just retired. Almost all are living on fixed incomes. In addition, they were raised in a more trusting era and are more likely to put their trust in what are said to be authoritative sources. Many are housebound and therefore more susceptible than the rest of the population to tempting advertising by mail and on television. Too often they rely upon quackery to provide miracles.

When the House Select Committee on Aging initiated a series of hearings and investigations on frauds against the elderly in 1978, it found that the elderly, who represented 11 percent of the population, accounted for 30 percent of the victims of health fraud. But today, while seniors comprise about 12 percent of the population, they represent almost 40 percent of health-fraud victims.

Arthritis accounts for a large part of the quackery market. It is America's number-one crippling disease and is the leading cause of restriction of mobility in the nation. Arthritis refers to the inflammation of the joints, but it can also affect the spleen, heart, lungs, and muscles. The first line of treatment for arthritis is medication, namely, aspirin and other anti-inflammatory drugs. And, while there have been breakthroughs in treatment in recent years, there still is no cure for this painful condition. Frequently symptoms of arthritis go

into remission, and victims of the disease are apt to attribute this remission to a phony remedy.

Despite enormous progress in the treatment of cancer, it is estimated that half of all cancer patients either seriously consider or try quack remedies and unproved cancer cures. The reliance of cancer victims on unproved remedies is a result of several factors: (1) cancer is one of the most feared diseases; (2) people generally are not knowledgeable about the nature of cancer; and (3) they are ignorant of the dangers of using unproved remedies. They therefore waste precious time before seeking legitimate treatment.

The normal aging process is a prime target for medical quackery. In our youth-oriented society, quacks promote a wide range of products by simply stating that they will halt or reverse the aging process or at least relieve conditions associated with it. Throughout history, man has sought the eternal "fountain of youth" or some type of magic potion that will halt aging and restore youth. Creams, lotions, pills, and other products that are claimed to restore lost vitality or youthful appearance are simply a ripoff.

The quacks also make their pitch to persons interested in curing obesity, foot problems, hair loss, heart disease, Alzheimer's, depression and other mental disturbances, and many other health problems. No area of the medical profession's domain is safe from charlatans using deceit to make a profit.

Recommendations for Reform

Based on the information gathered by the House Aging Committee and its Subcommittee on Health and Long-Term Care, new approaches are required to educate consumers about the threat of quackery and to see that the government does a better job of detecting health fraud and punishing its practitioners. At present, the penalties do not provide a meaningful deterrent.

I plan to introduce legislation to raise the penalties for mail fraud. Fines and prison sentences for these crimes have not been raised since 1909! I will propose lifting the penalty for one count of mail fraud from $1,000 to $10,000, and the prison term from 5 years to 15 years. Also, I will include a provision to permit the victims of these mail schemes to recoup money and other assets derived from swindlers' fraudulent activities. At present, mail-fraud perpetrators are not required to make restitution and can retain their ill-gotten gain after they have paid their fines or served time in jail.

For the federal government, as a result of our Committee's extensive review, I submit the following suggestions.

Congress should act to establish criminal sanctions for the FDA, FTC, and Postal Service that will act as deterrents to those who practice quackery and to establish a formal mechanism to evaluate medical technologies through clinical trials. Also, Congress should increase funding for research into cancer and other chronic, catastrophic illnesses. The Department of Health and Human Services should establish a specific office to coordinate consumer education and information. At present, individuals do not have access to appropriate information relating to specific disease prevention treatments.

The most grievous aspect of quackery is the use of fraudulent medical credentials. I have introduced legislation, H.R. 399, that would make it unlawful for an individual to obtain a position as a physician or resident in a hospital receiving federal funds if that person's license to practice medicine was obtained through intentional misrepresentation.

The states also must devote more of their resources to the problem since they have the primary authority to enforce criminal laws. At present, two-thirds of the states do not even have criminal penalties for quackery. Although Aging Committee surveys have revealed that all of the state agencies working in the health-fraud area have identified quackery as a significant problem, little is being done at the state level.

Several ways a state can take a more active role are: (1) by establishing a cancer advisory council within its Department of Health; (2) by adopting statutes that would govern the activities of foundations soliciting charitable donations; (3) by strengthening medical-practice statutes so that the practice of medicine without a license would be classified as a felony; (4) by adopting statutes establishing criminal sanctions for quackery; and (5) by establishing appropriate liaison with federal agencies.

These are a few suggestions to combat the monumental and ever-growing problem of quackery. The first step has already been taken: The public has been made aware of the problem. This growing awareness and the enactment of the legal restraints recommended above will help to protect the consumer and crack down on the most insidious of con men, the quack, and his arsenal of bogus goods and remedies. •

Catching Geller in the Act

It is often claimed that Uri Geller has never been caught cheating. A well-prepared reporter decided to see for himself.

C. Eugene Emery, Jr.

IT'S THE MOMENT of truth for Uri Geller. The self-proclaimed psychic, who gained fame and fortune in the 1970s by saying he could bend spoons, turn compass needles, and read minds using his mental powers, has just finished telling me that he's made millions during the past ten years by using his psychic abilities to find gold and other precious minerals.

So when I remove 20 sealed film containers from my carrying case, he knows exactly what I'm going to ask. Inside 19 of the plastic containers are chunks of worthless rock. The twentieth holds a gold wedding ring. Geller says he can find the gold.

The question is: Can he do what he claims?

A decade after disappearing from the talk-show circuit, Uri Geller is back with a new book, a nationwide publicity tour, claims that he has made a fortune as a mining consultant, and repeated denials that he uses trickery to perform his psychic feats.

His disappearance coincided with a growing belief that he was not a psychic, but a magician, a belief buttressed by the confession of one of his assistants and by the willingness of magicians and scientists to expose his tricks.

Geller, however, says he slipped from sight because he got tired of the rat race of the lecture circuit, he wanted to spend more time with his family, and he had decided to get rich.

Geller is a thin, tightly wound ball of potential energy who cites figures of $50 million or more when asked how much his psychic powers have earned him. Much of that money, he says, comes from a $1.6 million nonrefundable

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Eugene Emery is the science writer for the Providence *(Rhode Island)* Journal-Bulletin. *This article originally appeared in the* Providence Sunday Journal. *It is reprinted with permission.*

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consulting fee for finding natural resources. But he can't name a single company that has successfully used his services. "They're afraid of ridicule," he said.

He also mentions scientists who have become convinced that he has psychic abilities. And he warns that the U.S. government is not spending enough money on psychic research.

"I can erase computer tapes with my mind," he says. And "I believe the Soviets are training teams to be able to erase (American) computer tapes or cause errors in them." The results, he says, would be disastrous for national security.

His trip to Boston April 6, 1987, to promote his book, *The Geller Effect,* offered me an opportunity to see whether the man is a gifted psychic or a charlatan with chutzpa.

Two Ways to See

The first piece of evidence came when Geller asked me to make a simple drawing on my note pad. I had come prepared for that.

The day before, I had prepared simple drawings of a sneaker and a locomotive and sealed them in envelopes. I took that precaution because a good magician has many techniques for figuring out what object you've drawn, ranging from "pencil reading" (watching the top of the pencil) to listening to the scratching sounds you make when you draw.

One way to get around those tricks is to draw an unconventional object (not a house or a stick figure or a flower) beforehand and seal it inside of a marked envelope.

But Geller refused to look at my drawings. So I was left with doing things his way, at least for the moment.

When a magician does a mind-reading trick, there are two ways to see it—the way the magician *wants* you to see it and the way the trick is actually done.

Here's what Geller apparently wanted me to see: After I sketched a kite on my note pad, Geller asked me to trace the object in my mind. Geller closed his eyes and concentrated. Then he said it wasn't working. He asked to try it again.

My second drawing was a flower. After I had finished, Geller made a few scribbles on a piece of paper. But then he said once again that he was "not getting anything."

When I told him I had drawn a flower, he became excited. He picked up his paper and showed me what looked like a drawing of a cloud and two sketches of a tree. His drawings resembled flowers, Geller noted, saying he had succeeded.

But there was something else on the paper. Next to the other sketches, but crossed out, was the diamond shape of a kite, the first object I had drawn! "The first drawing was very close," Geller said, "but I didn't know what it was."

Suddenly, the man who had admitted failure moments ago was claiming two successes.

But instead of showing that Geller has psychic powers, the demonstration showed something else—Geller had cheated. He had made the drawing of the kite *after* I had shown him my drawing.

Let's go back and see how the trick was done:

When Geller was ready to guess my first drawing—the kite—I ripped a blank sheet of paper from my notepad. But he placed it on a nearby table, saying: "I'm not getting it, really. We'll do another one. Let me see what you drew." I showed him the kite. Geller told me to draw another picture, then turned away and covered his eyes.

But the blank sheet of paper remained on top of the table. Only after I had made my second drawing—*after I had shown him my sketch of the kite*—did Geller pick up the sheet and begin to mark on it for the first time.

So when did the crossed-out sketch of the kite appear on the paper? Geller had plenty of time to draw the kite and cross it out while I was sketching the cloud and the trees.

The psychic apparently was hoping I wouldn't remember the proper sequence of events. Without a sharp eye and a tape recording, I would have missed the deception. "What you see here is real," he insisted. "It's just not a trick."

A few minutes later, I would catch Geller again.

The Bending Spoon

Bending spoons is Geller's trademark, but there are lots of ways to do it.

In a one-on-one situation, the simplest technique is for the "psychic" to bend the spoon with his hands when you're not looking. Then he hides the bent part, either with his hands or by turning the spoon so you can't see the bend.

By gradually revealing the bend—by slowly moving his hands away or by twisting the spoon around—the psychic gives the illusion that the object is bending before your eyes.

And he doesn't need an elaborate diversion. It takes less than a second. Unless you know what to look for, you quickly forget the diversion. But you don't forget the bend.

When Geller took one of my two spoons, he initially held it in plain view, the bowl facing down. "So look what I do," he said. "Basically, I stroke it very gently." For the next 30 seconds, nothing happened.

Then came the diversion.

"What I need is to sit on metal," he said. "Do you have a bunch of keys on you that I could sit on?" Instead, he had me take another spoon, reach down, and put it underneath his sneaker. "It's not going to work, that's my feeling," Geller said as I sat back up and refocused the camera.

But I could tell right away something was different. First, I could no longer see the whole spoon; Geller was covering the handle with his left hand.

Providence Journal-Bulletin. Photo by C. Eugene Emery, Jr.

This picture, taken 13 seconds before Geller declared that the spoon had definitely begun bending, shows that the spoon has already been bent. The top of the handle peeks out from behind the middle joint of his little finger, well above where it would have been on the unbent spoon. The bend, not present in photographs taken before the reporter/photographer was distracted, is partly hidden by Geller's left hand. He also holds the spoon so the bowl faces his lap, at an angle that helps hide much of the bend.

Second, he was no longer holding it flat. The bowl, instead of facing down, was tilted toward his lap.

Even with the bad angle, I could catch glimpses of a bend in the handle. At that point, I took a photograph that shows the spoon with its bent handle.

In short, *the spoon had been bent while Geller was getting me to put another spoon under his foot.*

Geller himself provided the evidence that he was cheating.

It wasn't until *13 seconds after I took the photograph showing a dramatically deformed spoon* that Geller reported that the spoon was definitely bending.

Here is the timed transcript of Geller's statements, which begins after the telltale picture was taken.

:00 seconds—Wait a minute. I think it's happening.

:09 seconds—Is it?

:10 seconds—Yes, I think something's bending slowly. Is it?

:13 seconds—Yeah, it's bending, very slowly.

:16 seconds—Look. It's in front of your eyes and there's nothing hidden here.

But Geller wasn't finished. He got out of his seat and raced to a nearby table lamp, keeping his back to me for a few seconds as I followed. It would have been a perfect time to manually bend the spoon even further.

Sure enough, as he held the spoon near the lamp, Geller was again hiding

the handle. Gradually he let me see how the hand had bent further upward.

Once more, Geller insisted it was not a trick. But the photographs and the tape recording would reveal a different story.

Debatable Documentation

To support his claims, Geller notes that some scientists have documented his powers. He was the subject of a study of those powers at the Stanford Research Institute [now SRI International], a California think tank, where two physicists in 1974 published a report in the scientific journal *Nature* attesting to his psychic skills.

But he neglects to mention that the research has been widely criticized by other scientists or that the *Nature* article was published with a disclaimer from the editors.

The disclaimer said that although the work did not meet the journal's standards for good scientific research, the editors had decided to publish the "highly debatable experimental data" in part to resolve "extravagant rumor" about the experiments involving Geller's powers and "maybe stimulate and advance the controversy" over the legitimacy of psychic phenomena.

Geller said he never performed metal-bending experiments at SRI International because "I just didn't want to do it."

The fact is, Geller *did* try for weeks to bend metal at SRI, but he failed to do it under conditions that would have ruled out trickery.

Geller also drops the names of prominent politicians, including Jimmy Carter and Henry Kissinger, saying he tried to read Kissinger's mind and to influence Carter through thoughts. However, a newspaper in Britain, where Geller lives, tracked down Kissinger and a Carter spokesman who denied the assertions.

While Geller is passionately arguing that the United States is falling behind the Russians in psychic research, he is also refusing to prove his powers under conditions that would eliminate the possibility of fraud or trickery.

In the 1970s a group of respected scientists and magicians—the Committee for the Scientific Investigation of Claims of the Paranormal, based in Buffalo, N.Y.—challenged Geller to demonstrate *any* paranormal powers under such conditions. Geller never responded.

James Randi, the flamboyant magician who recently won the prestigious MacArthur Foundation "Genius" Award for his work exposing psychic hucksters, has a standing offer of $10,000 to Geller—or anyone else—if he can demonstrate psychic powers under controlled conditions. Geller won't even appear on the same program as Randi.

Other organizations have offered similar challenges.

To test his claim that he uses his mental powers to find natural resources, the British newspaper *The Mail on Sunday* gave Geller 84 matchboxes and asked him to find the one containing a diamond, gold, silver, oil, and coal. Geller refused.

'Not Interested'

In a hotel in Cambridge, Massachusetts, Uri Geller is staring at the 20 film cannisters I've pulled from my bag. It doesn't take a psychic to know what I'm after or to see from the seals on the containers that I've taken precautions to prevent him from cheating.

"How do you know I do these things?" he asks, his voice rising as I tell him about the gold in one of the cannisters. "Sure I *could* tell you, if it was laid on the table and I had an hour and a half or two hours. Sometimes it takes a day. I'm not trying to back out on you."

"I have all afternoon," I said. "I'm told your afternoon is free." (I had been told by his publicist that he had no appointments between 1:30 P.M. and 10 that night.)

"I'm not interested," he said.

And he left, 15 minutes before the scheduled end of the interview. •

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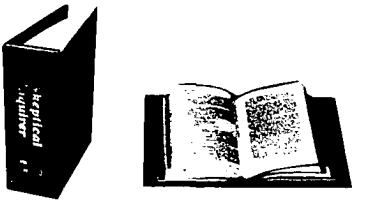

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We hope that these brief explanations help you understand some of the problems you may encounter. Please rest assured that the SKEPTICAL INQUIRER staff is working very hard to resolve them as quickly as possible.

the Skeptical Inquirer

Forum

Have Some Psychic Energy, On the Rocks

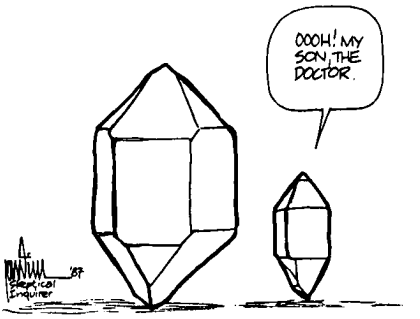
IT COULDN'T have happened only in Marin. It could have happened in Berkeley, too, because it was that sort of thing. But it did happen in Marin. You could tell from all the BMWs in the parking lot. This sounds like a cheap Marin joke, except that the BMWs were really there. At least a dozen of them. I counted.

It was the first-ever Marin Crystal Fair. In Marin, crystals are as hot as hot-tubs used to be. Crystals are having their 15 minutes of fame before going back to the rock collections of owlish kids, their usual domain.

It used to be you could sit with your legs crossed and meditate, and that was enough. That was before crystals. Now you need to clutch a chunk of quartz in your paw to improve the reception.

The hall at Larkspur Landing was jammed with New Age rock hounds in their Indian blouses. There were more crystals than in a box of Morton's salt. For an outsider to the world of crystals, it was slightly unnerving to walk the aisles and be surrounded by so much psychic energy. Everybody in the place knew for a fact that crystals worked. Everybody but me.

A crystal looks a lot like a rock, and most rocks of my acquaintance do not do much of their own accord. How exactly do crystals work? I put the question to a half-dozen people at the fair, and the answers all came back with a familiar ring.



"Wristwatches use crystals to keep time," said a woman in one booth.

"You have a digital watch? It's got a crystal inside, to keep time," said a man.

"Crystals are important in science," said another fellow. "They use them to keep time. They're in watches."

When everybody says the same thing, something psychic must certainly be going on.

Beginners in the crystal field might be content with a two-dollar chunk of quartz. Advanced crystal fanciers opt for crystal-tipped silver wands. Those were on sale for $500 a pop.

"They're great for making wishes and shooting off negative energy," said the wand woman. "I can let you have this one for only $375. Some of the solder came off, so we put it on special."

How do you make a wish with a crystal wand? She handed me a pamphlet that explained the technique. "Hold the wand in your left hand," it said. "Focus into the crystal. Tell it your wish. Then be patient."

As one who has made considerable wishes on birthday candles and falling stars, I can affirm that the value of patience in such matters cannot be overstated.

Something in me was still the skeptic, though, so a fellow in another booth said he could prove to me scientifically that his crystals work wonders. He told me to rub my hands together, then blow on them, then close my eyes and pick up his special crystal (on sale for $7) in one hand and point it at the other one. I did.

"There," said the crystal man, "Can't you just feel the energy flowing out of the crystal and striking your palm?"

"No," I said.

He took the crystal away and said it worked better for some people than others. He said I was one of the others.

—*Steve Rubenstein*

Steve Rubenstein is a columnist for the San Francisco Chronicle, *where this article originally appeared. It is reprinted with permission.*

New Schemes in Worthless Cancer Therapy

MYSTICISM and the occult certainly are thriving in this world of technological advances. P. T. Barnum himself would not be surprised at either unicorns or that you can still fool some of the people all of the time. Many people today approach health in a holistic fashion because of their desire to manage their own health. While this involvement does have laudable aspects, it also helps to create a climate for medical quackery.

Instead of the single medication of the past, like Laetrile and Krebiozen, today's worthless cures are more apt to be total regimens. The new philosophy incorporates diet, exercise, meditations, and mysticism to attain the ultimate Nirvana. Promoters of worthless cancer therapies are well aware of this philosophy and provide effective marketing coupled with pseudoscience. Countering these new schemes may require a different approach. A simple condemnation by the medical community may no longer suffice.

A good example of a new holistic remedy is metabolic therapy. Treatment is directed at "cellular detoxification and restoration." The detoxification is accomplished by colonic enemas; and the restoration, by special diets, vitamins, enzymes, and occasionally even Laetrile. This pseudoscience maintains that toxins and waste materials in the body interfere with metabolism and healing and that cells lack the nutrients essential to health.

Distrust of the medical establishment and a desire to avoid radiation, chemicals, and other environmental pollutants have caused some cancer patients to seek more natural measures to cure the disease. The macrobiotic diet is one of the many popular diets promoted by the East West Foundation and holistic practitioners. Proponents believe there is a "mother red blood cell" in the intestine that is the progenitor of all body cells. A carefully balanced diet is necessary to counteract bodily dysfunction (Yin foods for Yang cancers).

The utilization of these and similar therapies appears to be increasing, although this has been difficult to monitor. Until recently, there has been very little accurate information about the number of cancer patients on unorthodox therapy. The major concern is that the patient may be lured by worthless remedies at an early stage when conventional treatment can be most effective. Reports indicate that some patients opt for macro-

biotic diets when a Pap smear is abnormal or when a small lump is detected in the breast. One of these patients is being followed by a homeopath consulting with an iridologist, who determines the cause of all disease progression by examining the iris of the eye.

Concern about the new schemes grew when the results of a study by a University of Pennsylvania group headed by Barrie Cassileth were reported in the July 1984 *Annals of Internal Medicine.* The Cassileth study included 515 patients receiving unorthodox cancer treatments. They were mostly white, well-educated individuals dissatisfied with conventional medical practices and the health-care system generally. They felt a need to have an active role in their treatment and they sought a nontoxic approach. The worthless programs sought by the patients interviewed were, in order of popularity: metabolic therapy, diet therapy, megavitamins, imagery, spiritual and faith healing, immune therapy, and botanical therapy.

Immune therapy is immunoaugmentative therapy (IAT) as prompted by Lawrence Burton and now available in Freeport, in the Bahamas. Botanical therapy includes mistletoe (Iscador, originating from the celtic druids), chapparal tea (an American Indian remedy), and wheatgrass therapy. All of the treatments claim the necessity to improve the patients' own biological and psychic capacity to counteract the cancer. In summary, most patients interviewed found the pseudoscientific arguments of global mind-body emphasis appealing and creditable. Surprisingly the study also indicated that 60 percent of the patients were introduced to the unorthodox treatment by physicians, of whom 81 percent were U.S. trained and 18 percent were board certified!

Is all this just another series of unscientific approaches that will appeal to some patients? Should our position be to continue to educate and inform professionals and the public, insisting on the time-honored principles of clinical investigations? Or, should we, perhaps, respond to public and political pressures, as was done in the Laetrile issue, and acquire a database on some of the more popular "alternatives"—with the risk that the act of undertaking an evaluation itself may give credibility?

Scientific models are currently available to evaluate almost any modality. There is little question that such controversial techniques as biofeedback, acupuncture, hypnosis, psychosocial issues, and imagery should be studied. But, although every idea cannot be evaluated, perhaps appropriate investigation of some of the new schemes should be done and the results disseminated. The media may then even publicize the results before touting "sensational new cures."

A well-meaning professional may allow blind faith to supersede scientific evidence, especially when a touted therapy has not yet been tested. All forms of quackery depend upon the suspension of the pattern of thought we usually associate with rationality, logic, and the rules of evidence.

—Richard H. Lange

Richard H. Lange, M.D., is in the Nuclear Medicine Section, Department of Medicine, Ellis Hospital, Schenectady, New York. He has long been active in fighting unproved cancer treatments and is a CSICOP scientific consultant.

Book Reviews

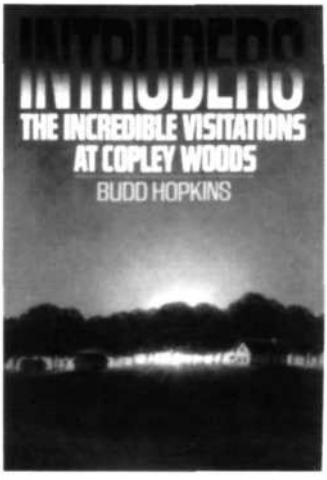
Intruders of the Mind

Intruders. By Budd Hopkins. Random House, New York, 1987. 224 pp. Cloth, $17.95.

Philip J. Klass

IN COMING YEARS, when psychotherapists encounter patients who describe nightmares involving curious "sexual-medical procedures" performed by strange-looking creatures and these patients express fears that they are victims of an extraterrestrial genetic experiment, it would be fitting if their malaise were referred to as "Hopkins' Syndrome," in honor of the author of *Intruders.*

While Budd Hopkins, a New York City artist turned UFOlogist and author, did not invent "UFO abductions," with his latest book he has become the "Typhoid Mary" of this affliction and, in my opinion, one of its indirect victims.



If you yourself have ever experienced an hour or two of "missing time" when you looked at your watch and discovered it was much later than you expected (as happened to me while writing this review), and if you have ever had a nightmare—even during childhood—that involved odd-looking creatures, then, based on the criteria Hopkins uses, you almost certainly have been abducted by extraterrestrials (UFOnauts).

Philip J. Klass, a veteran aerospace editor in Washington, is chairman of CSICOP's UFO Subcommittee and author of UFOs: The Public Deceived *and* UFOs Explained, *among other books. He is currently working on a book about UFO "abductions," to be published in early 1988 by Prometheus Books.*

Further, if at any time in your life you saw a light in the night sky that you could not readily justify, then beyond any doubt you are a "UFO-abduction" victim. Thus you can understand why Hopkins believes that there are many thousands of such victims.

Early in the book, Hopkins resorts to misleading doubletalk to try to convince readers he is a skeptical, rigorous investigator. He says he is "so skeptical . . . that I find it beyond me to deny the possibility of anything." Using this perverted definition, presumably Hopkins could not "deny the possibility" that Santa Claus exists.

Hopkins repeatedly demonstrates that he should more accurately be characterized as "credulous" or "gullible." For example, one of his subjects, a woman he calls Andrea (a pseudonym), now in her late twenties, told him that at age 13 she became pregnant. Andrea assured Hopkins that she "hadn't had anything to do with a boy at the time. I just dreamed this man was in my room and I was having sex with him."

The source of Andrea's pregnancy is obvious to Hopkins when she describes the man in her dreams as "real funny looking. He didn't have any hair on his head and he had real funny eyes": Andrea was impregnated by a UFOnaut. Andrea also told Hopkins that, when she was examined by a gynecologist before her subsequent abortion, he found she was still a virgin. Hopkins accepts this claim without even trying to verify it with the doctor.

Hopkins accepts Andrea's story because it resembles the tale told him by Kathie Davis (a pseudonym), which he characterizes as his "strongest" case. Kathie, a woman in her late twenties who lives near Indianapolis, is the centerpiece of the Hopkins book. Married at age 19 and divorced three years later with two sons, she contacted Hopkins after reading his earlier "UFO-abduction" book, called *Missing Time*. She subsequently visited New York City four times to meet with Hopkins, and he visited the Davis family in Indianapolis on four occasions. Other members of the family, including Kathie's mother, also told Hopkins of *their* UFOnaut encounters.

During one of these sessions with Hopkins, Kathie told him that she had become pregnant in early 1978, shortly after meeting her husband-to-be, which prompted them to accelerate their marriage plans. But, according to the book, two months later she discovered that "she was no longer pregnant. Yet there had been no apparent miscarriage." Some might simply dismiss the incident as a "false pregnancy," but not Hopkins.

During his first trip to Indianapolis, in January 1984, where he met Kathie and her two young sons, she told him: "Budd, you know I have a daughter too. . . . I never gave birth to her, but I know I have a daughter. . . . I think I've even seen her. . . . And I know something else. I'm going to see her again."

One might expect that Hopkins, whose book jacket characterizes him as a "meticulous investigator," would have explored Kathie's extraordinary claim immediately, or become extremely cautious in accepting Kathie's other tales. He did not.

During Kathie's second trip to New York, in early 1985, she reminded Hopkins that she had told him earlier that she knew she had a daughter. She now added: "Well, they showed her to me. I've seen her." Initially without the use of regressive hypnosis, Kathie described a recent dream in which there were "little gray guys" and two of them brought into the room "a little girl. . . . She looked like an elf, or an angel. She had really big blue eyes and a little teeny-weeny nose, just so perfect and tiny."

Later, Hopkins hypnotized Kathie to probe for more details and employed a post-hypnotic suggestion "that she would see her little girl again, and that she would never forget her." Whether or not Hopkins realized it, he was playing psychotherapist

without any formal training and was ensuring that Kathie would continue to dream of UFOnauts.

Although Kathie described the incident as a dream, Hopkins knows better and explains that this is only her "efficient self-protective method" to neutralize "disturbing UFO events." He adds that "Kathie nearly always chooses to refer to her UFO experiences as dreams. It is a useful, agreed-upon fiction." At least several other of his subjects do the same, but Hopkins is clever enough to recognize that their dreams are really recollections of actual events.

It is obvious to Hopkins that the beautiful little girl in Kathie's "dream" explains the mysterious disappearance of her pregnancy in 1978 and confirms his own theory that a vast extraterrestrial genetic experiment is under way: Obviously, Kathie's two-month-old fetus was removed in early 1978 and transplanted to the womb of a female UFOnaut who later gave birth to the child Kathie recently described seeing in a dream.

However, there was one "missing link"—Kathie had not so far *recalled* having the two-month-old fetus removed in early 1978. This was readily resolved during her third visit to New York, in October 1985, when Hopkins used regressive hypnosis and asked leading questions (which should never be done during hypnosis intended to probe memory).

Kathie recalled a visit to her older sister's house in 1978. It was late in the evening and she was lying on the couch watching TV when she felt "someone's touching me." Prompted by Hopkins's leading questions, Kathie recounts what might be described as a "sexual-medical procedure" performed by unseen entities. Or it could be characterized as a dreamlike fantasy of a young woman who, by her own admission, had been "sexually active" before marriage. Naturally Hopkins prefers the former explanation.

At one point Kathie becomes hysterical and screams: "It's not fair! It's mine." Hopkins brings Kathie out of hypnosis and asks if the UFOnauts have "taken her baby." She "confirmed it," according to Hopkins. "I tried to comfort her, telling her that what they had done was cruel," Hopkins writes. It never occurs to Hopkins that his own delusions are the real cruelty.

Hopkins must have been delighted, although he does not admit it, to obtain confirmation of his theory: "A central goal of UFO abductions, I now believe, is the apparent interbreeding of an alien species with our own. And that process, it would seem, is both covert and very widespread."

Hopkins claims further confirmation of his theory because three other women besides Kathie either "dreamed" or recalled under hypnosis that they had been "shown an abnormally tiny baby, *grayish* in skin color, oddly proportioned, and apparently only partially like a human infant. The women's descriptions of these tiny babies are extraordinarily alike." He forgets that only 13 pages earlier he had written that, although the "women's descriptions of the infants . . . are *somewhat different, many of the similarities are striking*" (emphasis added).

The following examples of their descriptions of the babies should suffice to evaluate the author's judgment:

Kathie: "He looked like an old man. . . . His head was real soft, like a marshmallow."

Andrea: "It looked like me, except the eyes were very shiny and they were all black. She had long, thin black hair."

Pam: "Looked like a little newborn lamb . . . with skinny little legs . . . sort of half human, half whatever it was. . . . The skin is *white* . . . so thin it's see-through"

(emphasis added).

Susan: "The skin is very thin . . . *grayish*. . . . I can't see the eyes . . . well I sorta can. . . . The head goes down to a point" (emphasis added).

Because Kathie is the centerpiece of the Hopkins book, and because of the claim that he is a "meticulous investigator," one might have expected that he would have tried to verify at least one tale she told that could be easily checked. For a relatively young woman, Kathie claims to have "suffered just about every medical anomaly," Hopkins notes.

According to Kathie, by age 10 she was overweight and suffered from high blood pressure, and at 14 she had her gallbladder removed. She reportedly also suffered from hepatitis, almost died of pneumonia, and experienced a mysterious fusing of "two extra vertebrae" in her spine. In 1983, Kathie claimed that one of her lungs collapsed and that she later developed an irregular heartbeat. And her second son was delivered via caesarian section after she experienced a sudden kidney failure.

In addition to this long list of ailments, Hopkins reports that Kathie also had entered group therapy "to help her cope with years of insomnia and paralyzing anxiety," which included a fear of the dark.

In the spring of 1986, Kathie telephoned Hopkins to report another dream. In this one she had seen a little baby as well as the young girl earlier described. She indicated that they were but two of *nine* of her extraterrestrial hybrid offspring. "The implication was that since 1978, *nine* of her ova had been taken, successfully fertilized and brought to term," Hopkins wrote. (Considering Kathie's long list of serious illnesses, one might think that the UFOnauts would have tried to locate a healthier donor of ova for their genetic experiments.)

My own suspicions are that Hopkins's own gullibility made him an easy victim for a lonely Midwest divorcee who enjoys the excitement of spinning tall tales to an eager listener, especially an artist from New York. At Hopkins's invitation, Kathie made her first-ever visit to New York, which—not surprisingly—she "very much enjoyed," according to the author. And later she made two more trips to the Big Apple to report her latest dreams to Hopkins and to meet with other "abduction victims." Between trips there were reports by telephone.

And the Davises' friends and neighbors could not help but be impressed that a New York City artist/UFOlogist would journey to Indianapolis on four occasions to interview members of the family. (Even Kathie's mother recalled that *she* had had UFO encounters in her youth—some years before UFOs were first "discovered.")

When a series of psychological tests was run on nine of Hopkins's "UFO-abduction" victims, all of them showed "a degree of identity disturbance . . . and generally suffered a lack of self-esteem," according to the psychologist who administered the tests. Hopkins's avid interest in their stories must certainly have given a needed boost to their self-esteem. Additionally, all exhibited "generally mild paranoia phenomena." Hopkins believes these traits are the result of their UFO encounters.

If Hopkins were the only victim of his overwhelming desire to believe in an extraterrestrial genetic experiment, he would have only himself to blame. But he reports that his earlier book, *Missing Time,* evoked "hundreds of letters" from persons who suspected they too might be "abduction victims"—and his new book is likely to reach a much larger audience.

Some of these earlier letters came from men who described dreams in which they were "raped" by female UFOnauts. In one instance, the female was described as being quite voluptuous, but with a large, bald head; another "victim" reported that his partner had long black hair. Some reported dreams in which their sperm were

withdrawn by means of a vacuum device. (The last page of *Intruders* solicits reports from readers who "believe you may have had the kind of experience dealt with in this book.")

Betty Hill and her late husband Barney—whose UFO-abduction was the first such story to achieve international fame, in the fall of 1966, through two articles in *Look* magazine and a book by John G. Fuller—were lucky enough to be treated by the late Ben Simon, a prominent Boston psychiatrist. Dr. Simon had achieved considerable fame during World War II for his use of regressive hypnosis in treating "shell-shocked" soldiers. Dr. Simon fully recognized the limitations of hypnosis, as he stressed to me when we first met in the fall of 1966. "Hypnosis is *not* a magic road to the truth," he said.

After treating the Hills for several months, Dr. Simon assured them that, while their recollections under hypnosis—of seeing a very bright UFO in the night sky while driving through the White Mountains of New Hampshire—were based on reality, Betty's subsequent dreams that the two had been abducted and taken inside a flying saucer for a brief physical examination were nothing more than dreams.

As a result of Dr. Simon's sage advice, Betty did *not* suffer recurring nightmares of additional abductions involving terrible personal indignities, as do many of those who seek counsel from Hopkins. Whether or not Hopkins realizes it, in seeking to confirm his own fantasy of an extraterrestrial genetic experiment, he is playing the role of psychotherapist without any training in that field. How tragic for his victims. •

Corrections

We inadvertently omitted the credit line from the three photos accompanying Richard Busch's special report "The Unmasking of Psychic Jason Michaels" in the Summer 1987 issue. These photos were by Cynthia Busch.

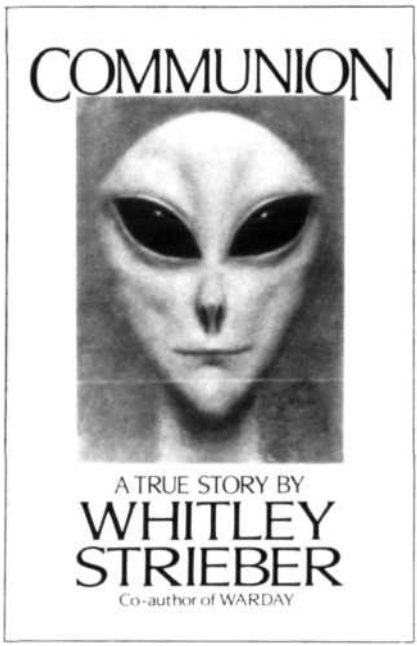
In Michael R. Dennett's review of *The Sasquatch and Other Unknown Hominoids,* the sentence on page 409 quoting Bil Gilbert should have read: " '. . .' Krantz plans to sell it—whole or in pieces—to museums for several hundred thousand dollars. . . .' "

Communion with the Imagination

Communion. By Whitley Strieber. Beech Tree Books/Morrow, New York. 300 pp. Cloth, $17.95.

Ernest H. Taves

THE READER OF *Communion* is repeatedly advised, on the bottom margin of every other page, that the book is "A True Story." This claim is preceded, on the front endpapers, by an unusual plea to the reader not to be too skeptical when perusing the text. The publisher—and the author—might have included as well an admonition to "Fasten Your Seat Belts," for we embark here upon a journey replete with horror, nightmare, dread, and fear of insanity.



Even before *Communion* became a best-seller this spring, with the help of a big publicity campaign, Whitley Strieber's name was undoubtedly familiar to many readers of this review. He is a well-known author of horror novels (*The Wolfen, The Hunger, Black Magic,* and others), some of which have been made into movies. Let us begin by reviewing a number of episodes in his life that he relates in this book, remembering as we do so that some of the biographical material was recovered in hypnosis after the events described.

At the age of 12, Strieber goes out in the evening to a tent in a lot next to his backyard. He is accosted by a huge insect, similar to a praying mantis, which he had at first mistaken for a skeleton on a motorcycle. The bug pins the lad to the ground and hits the boy's head with a silver nail.

At about the same age, Strieber is taken on a train trip, with his family, from San Antonio to Wisconsin and back. On the train he is very sick. Though he does not remember being "taken" from the train, from that day he has had the memory of seeing that train from far above, rushing through the night, passing through wooded countryside. A year after that, following instructions provided by visiting spacemen (as he told a friend at the time), he uses a lot of electromagnets from old motors to construct an anti-gravity machine in his bedroom. When he plugs it in, there are showers of sparks, and the lights in the house begin to pulsate. As the machine destroys itself the lights all become dim, then burn brightly, many of them blowing out. The next night the roof over that part of the house is destroyed by fire.

Ernest Taves is a psychiatrist with a long-time interest in UFO reports. He co-authored, with astronomer Donald Menzel, The UFO Enigma *(Doubleday, 1977).*

Years later, while a student at the University of Texas in Austin, he has a "missing time" experience lasting at least 24 hours. For this period of time he simply isn't there, and he doesn't know where he has been—but he thinks that what happened to him during the lost hours was revealed to him some weeks later when he was visiting his grandmother's house in San Antonio. Late one night, while lying in bed reading, he is suddenly transported back to Austin to that earlier time. He jumps into his car and starts to drive, but can't see anything outside the car and has to stop. A demonlike figure with a fierce face, like that of a giant fly, appears at the car window. Strieber has an agonizing struggle, at the same time trying to drive on and get out of the car. Then he is back in bed in San Antonio; the magazine he had been reading is exactly where it had been, and he hasn't moved a muscle. This is, Strieber suggests, a nightmare memory of at least part of what happened during the missing time. Later, in hypnosis, he recalls that at the beginning of this experience he was visited by a buzzing entity that struck him in the head, again with a silver nail (something like a railroad spike).

Two years later Strieber goes to London to study cinema and has another missing-time experience, this one lasting four to six weeks. He has jumbled and chaotic memories of traveling about Europe during this time, living like a fugitive, after which he finds himself back in London, not knowing how he got there.

There are many more bizarre episodes in Strieber's life—including a two-way conversation with a voice that suddenly came through his stereo system—but let us swiftly move ahead to two subsequent happenings. The first of these occurs on October 4, 1985. Strieber is in his isolated cabin in upstate New York with his wife and son and another couple. After all have gone to sleep, Strieber wakens and sees, through the open bedroom door, a blue light cast upon the cathedral ceiling of the living room. He interprets this as indicating that the chimney and/or roof of the house are on fire. Afraid, and with heart beating rapidly, he immediately goes back to sleep! He is awakened again by a sharp report, like the sound of an exploding firecracker. This is also heard by his wife, and downstairs his son begins to shout. The house is surrounded by a glow. As Strieber starts to go downstairs, the glow disappears. He comforts his son, reassures one of his guests whom he meets in the hall, and all return to sleep. Nothing much is said about this the next day. Later, under hypnosis, he recalls being visited on this night by a little man with a hood but no head. When the man touches him with a silver-tipped ruler, or wand, he has a vision of the world blowing up.

During the last week of that month Strieber decides that he can't live in New York any more, that he can never again enter the dark cabin. They put it and their city apartment on the market and go to Austin, with thoughts of moving there. While looking at a house for sale, Strieber is suddenly vastly afraid and feels that the sky is a living thing, watching him. He realizes he is having paranoid fantasies. He decides they must return to New York. His wife is (understandably) furious, but back to New York they go.

Almost three months later, on the day after Christmas, Strieber and his wife and son are again in the cabin. (Strieber learns later that at about this time a "large unknown object" had been seen in the vicinity.) That night, having finally fallen asleep, after carefully shutting up the cabin, setting the alarm system, and looking in the closets and under the beds, he is suddenly awakened and hears a whooshing noise from the downstairs living room, as if large numbers of people are moving about. The panel of the alarm system at his bedside indicates no intrusion. He settles back in bed but sees the door to the bedroom opening. Strieber, now wide awake,

stares at a figure about three and half feet tall, with dark holes for eyes and a mouth like an "O." His next memory is of being in motion, transported, paralyzed. Then he is outside the house, in a depression in the woods, in the presence of at least two small figures, one distinctly feminine, the other with a face like a mask. Next he is far above the woods, a floor slips in beneath him, and he is in a "messy round room"—i.e., he has been abducted aboard an alien spacecraft. He is filled with dread, to such a degree that he ceases to exist. "I died and a wild animal appeared." Many small people, no fewer than four types of them, move about him at great speed. Some are short and stocky, and Strieber thinks of these as a "good army." He is shown a needle and understands that it is to be put into his brain. After a bang and a flash, he realizes that a brain operation has taken place. Then an enormous ugly object, scaly, triangular, a foot long, is inserted rectally, and he feels he is being raped. An incision is then made in his right forefinger. Strieber's initial memory of the event ends there.

(These memories were hidden until the following January 13, when they surfaced, Strieber thinks, because of a pain behind his right ear (in which area his wife found a tiny pinpoint scab), an infected right forefinger, and rectal pain when sitting. When he awoke on the morning of December 27 he remembered only the image of an owl *looking in at him through the bedroom window.*)

Later (the following March) he recalls under hypnosis more details of the night. He is taken from his room by a whole bunch of small entities, and moved out onto an iron cot. Very scared, he soars above the trees and is told there will be an operation. One of the beings, whom he believes to be female, approaches with an object and puts it into him—site unmentioned, but presumably this object is the triangular device noted above. There is a lot of sexual imagery here. Then he is back in his living room.

During the following weeks Strieber is, understandably enough in view of his recent experiences, a troubled man. He thinks he might be going mad, might even have a brain tumor. He describes himself as having been, for most of his life up to this time, a man on the run, pursued by unnamed fears and a variety of personal demons. Now he wants to stop running. On February 6, some weeks after the second experience in the isolated cabin, he meets Budd Hopkins, a man with an interest in cases of alleged UFO abduction. They discuss Strieber's recent history, and Strieber is comforted to learn that many others have reported the same kind of experiences. The next day he calls the couple who were visiting the cabin on that October night. He expects (and hopes) that they have no memory of anything special happening. But both guests recall the light and the loud noise in the night! Strieber questions his son, who also recalls the noise and tells of a bunch of people being in the house that night. So the problems continue.

Indeed they do. The next night Strieber is reading in bed at midnight. He turns a page, and it is 4:00 A.M. Four more hours of "missing time." Later he discovers two triangles on his left forearm, incised there as if by "a skilled master surgeon." (There is a lot of preoccupation with triangles in the book.) Strieber now consults a psychiatrist, Dr. Donald Klein. Four hypnotic sessions follow, during which some of the history noted earlier in this review was recalled. (It should be noted that, although hypnotic regression is often useful in psychiatric therapy, the material recalled does not necessarily relate to objectively determinable reality.)

On the morning after the second hypnotic session Strieber wakes up and realizes that he is being watched. A face is staring at him, a face both grave and subtly humorous. Strieber refers to this as "The Image." Strieber sits on the floor, meditates, and finds that the face follows his commands—i.e., turns this way and that at

Strieber's will. Later he describes the face to an artist, who produces the figure found on the book's dust-jacket. The eyes are the ones he had seen in both the October and December experiences.

The last session of hypnosis is on March 14. Late that evening, "The Image" still with him, it occurs to him that whatever he may write later about all this will be more intense if he were given some kind of *confirmation.* The image responds with a sharpening of its stare. The next day Strieber, his wife and son, and a friend of their son, a young girl of the same age, go to the cabin. That night, after dark, at dinner the friend suddenly shouts, "A little airplane with lights just flew through the front yard!" Later in the evening Strieber discusses with his wife, Anne, his communication with the image, in which he had, in effect, suggested a confirmation. Anne's first reaction is to take the kids back to town and leave her husband there to "face the music."

And the music comes. Strieber goes for a walk alone in the night. A thin line of light appears in the sky, and Strieber is disappointed at such a modest manifestation. But the night has yet to run its course. Later, in bed, he is awakened by a jab on the shoulder. Three little visitors are standing by the bed, a trio of the dwarflike creatures he has previously thought of as as the "good army." The Image is also there: "They had responded to my summons." Strieber now feels a great sense of responsibility; he must communicate with them in a nonthreatening way. He is almost paralyzed. Finally he smiles at them. They dash away with a whoosh, and Strieber immediately goes to sleep.

On March 21, a week after the last session of hypnosis, Strieber is again at the cabin. He awakens at night, is unable to move, and feels that something is in his left nostril, being slowly moved far up. He hears a pop, like an apple crunching between his eyes. The next thing he remembers it is morning. That day his nose bleeds a little, and he consults a physician, who makes the diagnosis of a scratch of the nasal mucosa. He says the "knot" up there will subside. As it does.

Enough. Is this just another typical tale of abduction aboard a spacecraft by visiting extraterrestrials, one more in a long series? No. There is a difference—and a large one—in that Strieber himself, in his account here related, is apparently unsure of what has been happening to him. This despite the fact that, if the events were as reported, other people were involved—hearing noises, for example, on the night of October 4; despite physical evidence of the visitations appearing on Strieber's body (triangles incised upon his arm, a minute scab behind the ear, a "knot" in a nostril). If the visitations were not "real," how account for these stigmata? Strieber writes, "*To all appearances* I have had an elaborate personal encounter with intelligent nonhuman beings" (emphasis added). One might be forgiven for wondering if Strieber is not going down two roads at the same time here, on the one hand writing an imaginative tale of a kind he knows sells well, offering it this time as nonfiction, while on the other saying (in effect), "Gee, folks, I never said it really happened." That doesn't quite fit the bill either, however, for Strieber implores the reader to believe that *something* has indeed been happening to him—as it has been happening, he notes, to many others. Strieber makes no claim to solving the problem of what it *is* that is happening: "Either what is happening is that visitors are actually here, or the human mind is creating something that, incredibly, is close to a physical reality. Whatever it is, it is not presently understood by science." He suggests further that the main body of scientists should cease scoffing at "abductees" and lend a hand to find out what is going on. Among the astonishing possibilities Strieber offers as explanations for the visitors is that they are human time-travelers assuming an extraterrestrial

disguise in order to prevent the creation of a catastrophic temporal paradox.

What, then, are we to make of this remarkable assemblage of material? Might not the initial reaction be that the unfortunate Strieber has been taken over, possessed, by his horror novels—at least one of which dealt with the invasion of our society by alien entities? This reaction would have immediate competition from the concept that Strieber is simply doing what he has been for years, changing only the label. Suppose Strieber were to come to me thus: "Taves, you are an acknowledged skeptic in such matters. You have read my book. Do you think it is a put-on?"

Well, Strieber, I might reply, look at it this way, You've had an interesting and somewhat unusual life, with all kinds of strange things happening to you. Through most of it you have wanted to write, and have been a writer. From 1970 to 1977, while writing novels you were unable to sell, you worked in the advertising business. The skeptical—or the cynical—might not be faulted for saying that advertising might be considered as the business of selling lies. Walking in Central Park one night you encounter a pack of feral dogs. You think of wolves in the wild, then of werewolves, and you have the idea of a flock of them living in the middle of a large city. You write feverishly—and you sell *The Wolfen.* You have broken through, and you become a best-selling writer of horror novels. It would seem to me a logical progression—a logical progression, Strieber—to enlarge the horizon yet further by shifting to a new but closely related field, with the stunning variation of this time offering it as fact, thus enhancing its already built-in appeal.

Well, Taves, it isn't a put-on.

I only said it would be a logical progression.

In any case, we need to consider the possibility that the book is a hoax—a riveting fictional narrative offered as fact. Is Strieber capable of such behavior? Though he describes himself in the book as an honest man and has passed a polygraph test (about which more later), he does not entirely allay my suspicions. For example, when he was interviewed by Douglas Winter not long ago (*Faces of Fear,* Berkley Books, 1985) he described in great and gory detail his presence on the campus of the University of Texas in Austin in 1966 when the sniper Charles Whitman began shooting people from the tower. Strieber wasn't just on campus, he was *there,* in the shadow of the tower, and saved his own life by hiding behind an embankment, emerging only when he saw the dead body of Whitman being removed. But he confesses in the book that, although he's been telling people for years that he was there, the fact is that he wasn't. Such admission does not lend credence to the rest of the narrative. At one point Strieber almost seems to be hinting that the whole thing is a put-on. He writes that he was very debilitated after his third session of hypnosis, which Dr. Klein terminated because of Strieber's distress. "Either I was overloaded . . . or there was a limit to the amount of information I would be able to remember. Or perhaps . . . my unconscious mind . . . had not yet had time to *construct more stories*" (emphasis added).

Further, there are troublesome inconsistencies and contradictions in the book—suggesting, at best, that it was put together hurriedly and hastily edited. For example, there is the curious chronological disarray with respect to his first return to the cabin after the events of December 26. Strieber writes (p. 101) that he, his wife, and their son first returned to the cabin about two weeks after his last hypnotic session. His last hypnotic session was on March 14, which would place their first return at about March 28. But we have already seen that he and his family were in the cabin on two preceding occasions; they were there on March 15, the day after the last session of hypnosis, and they were there on March 21, the night of the nasal invasion. This

kind of reportage does not instill confidence in the reader.

Strieber notes that he passed a polygraph examination, and the text of the test is included in the book. Passed or failed, we need to attribute no particular significance to the result; polygraph testing is notoriously fallible, particularly in respect to false negatives, as recently seen (for example) in the case of Mark W. Hofmann, the Salt Lake City forger and bomber, who passed his polygraph tests with flying colors, but later confessed his guilt.

Still, Strieber's testing is not without interest. He was asked, "Did you ever lie to someone who trusted you prior to 1984?" Strieber answered "No," and this was evaluated as false. And it was false. As Strieber says, ". . . I lied to my parents . . . when they asked me if I knew what could have burned the house down when I was a boy." Fair enough, but again Strieber has difficulty getting his facts straight. It is made quite clear elsewhere in the book that the house did not burn down, only part of the roof.

It might be added that some of the questions seem impermissibly vague. "Do you belong to any cults?" Test questions must be precise and specific. People differ in their interpretation of *cult*. Strieber answered no, and this was evaluated as true. Interestingly enough, in the interview with Douglas Winter noted earlier Strieber said that he had tried worshiping the earth as a goddess/mother, and that he had been a witch.

In view of the experiences related in the book, the question of Strieber's sanity must also arise—as, indeed, it did in Strieber's own thinking. An appendix in the book is a statement by Dr. Klein—a psychiatrist whose qualifications are not in dispute; he is Director of Research at the New York State Psychiatric Institute. He writes, "I have examined Whitley Strieber and found that he is not suffering from a psychosis. . . . He appears to me to have adapted very well to life at a high level of uncertainty." One of Dr. Klein's statements seems to me guarded: "He is not hallucinating *in a manner characteristic of psychosis*" (emphasis added). The issue was a little clouded by the fact that, after Strieber had the episode of nasal bleeding, Dr. Klein wrote that many of Strieber's symptoms (what is meant here specifically is not stated in the book) were consistent with temporal lobe abnormality, thus raising the question of organic brain disease. Subsequent electroencephalographic testing, however, revealed no abnormalities. On the basis of the data presented, Strieber has a clean bill of health. That said, it might be added as a cautionary note that Strieber has manifested over the years, an observation he himself makes, a good deal of paranoid mentation.

How to sum this all up? It seems, to this reviewer, that we confront a number of hypotheses. Let us consider four:

1. Strieber's experiences are "real." He (and by implication, many others) has been visited by intelligent nonhuman entities or beings. Their origin is extraterrestrial.

In view of the absence of *any* objective evidence, the rationalist must dismiss this hypothesis forthwith.

2. As above, but the origin of the entities is terrestrial—akin to fairies or the ancient gods, or they are time-travelers coming back from the future, whatever. The same constraint noted above applies.

3. Strieber is mentally ill, suffering from delusions and hallucinations. The evidence presented does not permit us to entertain this hypothesis.

4. A successful writer of imaginative horror fiction is having fun, playing a joke on his readers—and perhaps upon his publisher as well—serving up an engrossing and fanciful tale, offering as fact what is fiction.

The reader of this book will, of course, come to his own conclusion. This reviewer, again invoking Occam's Razor, will opt for the last one listed above. By May 1987 the book was first on the *New York Times* best-seller list. My only quarrel with that is that it may be listed in the wrong column, i.e., as nonfiction. •

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Articles of Note

Anderson, Ian. "Taking up the Sceptics' Burden." *New Scientist,* April 16, 1987, pp. 51-52. Report on CSICOP's Pasadena conference.

Chandler, David. "A Myth-Information Primer." *Boston Globe,* March 30, 1987, p. 37. A science writer debunks some very commonly held myths: that praying mantis females devour their mates during copulation, that lemmings leap into the sea to commit mass suicide, that the flush toilet was invented by a man named Thomas Crapper, and that opossums sleep while hanging upside-down. Chandler tells *SI* that in a decade of science writing he has never received as much response as this piece generated. A followup story, "More on the Mating Habits of the Mantis," was based on studies by biologist W. J. Davis of the University of California, Santa Cruz.

Gardner, Martin. "Isness Is Her Business." *New York Review of Books,* April 9, 1987. Essay-review of Shirley MacLaine's books and TV miniseries and Steven Lee Weinberg's *Ramtha.*

Gersh, Debra. "Disclaiming Horoscopes." *Editor & Publisher,* March 28, 1987, pp. 22-23. Report on the *Columbus* (Ga.) *Enquirer* and sister paper, the *Columbus Ledger,* running disclaimers next to horoscopes telling readers they have no factual basis. See also Groce, below.

Groce, Carole Rutland. "Horoscopes No Longer Signs of the Time." *The Sunday Ledger-Enquirer* (Columbus, Ga.), March 8, 1987, p. B-13. Column by local astronomer, director of the Patterson Planetarium, reporting on why "astrology is, frankly, junk" and asking readers not to confuse science with astrology. The column is preceded by this editor's note: "The Ledger-Enquirer Monday begins adding this disclaimer to our astrology columns: *The horoscope is intended for entertainment only. The predictions have no reliable scientific basis.*"

Emery, C. Eugene, Jr. "Psychic or Charlatan: Uri Geller Reverses His Disappearing Act." *Providence* (R.I.) *Sunday Journal,* April 12, 1987, p. A-21. A well-informed and well-prepared reporter goes to a session with Uri Geller and documents Geller's cheating. See Emery's article, this issue.

Hyman, Ray, and Charles Honorton. "A Joint Communique: The Psi Ganzfeld Controversy." *Journal of Parapsychology,* December 1986. An unusual joint paper by, as Editor K. R. Rao points out in an introductory editorial, "a renowned critic of experimental psi research and a respected experimenter in the field" setting out their essential agreements on a significant area of psi research. A note by the authors of the Hyman-Honorton communiqué states, "To the best of our knowledge, this is the first time a parapsychologist and a critic have participated in a joint statement of this type." Almost this entire issue of the *Journal of Parapsychology* is devoted to a critical appraisal of the psi ganzfeld controversy (see *SI,* Fall 1985, pp. 2-6). Other articles and comments are by Robert Rosenthal, Irvin L. Child, James E. Alcock, Christopher Scott, Gerd H. Hövelmann, James McClenon,

John Palmer, and Rex Stanford. A major effort toward a constructive dialogue and narrowing of disagreements.

Mishkin, Mortimer, and Tim Appenzeller. "The Anatomy of Memory." *Scientific American,* June 1987, pp. 80-89. An inquiry into the roots of human amnesia helps show how deep structures in the brain may interact with perceptual pathways in the brain to transform sensory stimuli into memories.

"More Controversy About *Teaching Science in a Climate of Controversy.*" *Creation/Evolution Newsletter* (National Center for Science Education, Box 32, Concord College, Athens, WV 24712), March-June 1987. Introduction to an issue devoted largely to critiques and debate about the American Scientific Association's 48-page booklet published last fall and widely distributed to teachers. The booklet presents a reasonable-*sounding* middle ground in the debate between scientists and creationists. A number of critics, however, call it subtly disguised creationism. William J. Bennetta calls it "a deliberate attempt to manipulate and mislead teachers." Valuable analyses by Thomas H. Jukes, Neil A. Wells, Steven D. Schafersman, Karl D. Fezer, and others.

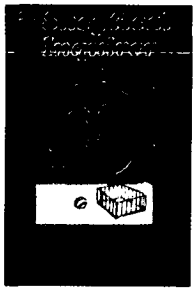
Monmaney, Terence. "Preying on AIDS Patients." *Newsweek,* June 1, 1987, pp. 52-54. Report on quacks' peddling bogus AIDS cures.

Noland, David. "A Man Who Defies the Laws." *Discover,* May 1987, pp. 46-63. Lengthy feature on Joseph Newman's "Energy Machine." Most casual readers probably never made it to the final five paragraphs where the author points out the flaws in claims about Newman's 1,800-pound test car. "Newman is wrong. . . . The hulking . . . Newman motor . . . transformed 340 watts of battery power into 215 watts of driving power, for an efficiency of 63 percent, a decidedly unmiraculous figure, inferior to that of a conventional electric motor." He also calculates that the Newman car would have to run 25.9 hours at 4 mph before it violated any laws of thermodynamics. Newman generally claims the very fact that it moves at all proof of his theories. See also Letters, "Joe Newman's Machine," June *Discover,* pp. 104-105.

Quinn, Mary Alice. "Disclaimer Will State Horoscope's Entertainment Purpose." *Memphis* (Tenn.) *Commercial Appeal,* May 31, 1987, p. E2. Column by newspaper's assistant managing editor reporting that it intends to add this disclaimer to its horoscope: "The horoscope is an entertainment feature. Predictions are not based on scientific fact." George Brown, a local planetarium director, is quoted on the invalidity of astrology. The editor calls horoscope predictions "as generic as unlabeled cans of tomato soup" and even quotes a local astrologer as agreeing that they are for entertainment only.

Sullivan, Meg. "New Age Will Dawn in August, Seers Say, and Malibu Is Ready." *Wall Street Journal,* June 23, 1987, p. 1. Report of New Age preparations for rites at "sacred sites" around the globe on August 16 and 17, 1987. Otherwise, predicted "millennialist" Jose Arguelles, Earth will start to slip out of its "time beam," individuals will become disoriented, coincidences and UFOs will proliferate, and we will lose our chance to join a federation of extraterrestrials. Another report on New Age faddism, including "tantra sex," crystal therapy, higher-self seminars, and Mayan mysticism.

—*Kendrick Frazier*



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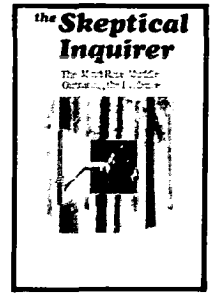

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CSICOP Endowment Fund
B. F. Skinner, Honorary Chairman

As announced earlier, B. F. Skinner has agreed to serve as Honorary Chairman of the CSICOP Endowment Fund. Dr. Skinner noted that he is extremely busy with research and writing and seldom takes on additional projects, but he felt that the work of CSICOP is so important and unique that he would break his general rule.

There are many calls upon each of us for our time and financial resources, but CSICOP needs a major infusion of support to ensure its long-term viability. The Committee is small, but its influence has been impressive. One of the major reasons for this is the catalysis of enthusiastic support by *SI* readers who take initiatives ranging from lobbying local schoolboards to founding regional organizations and new publications.

CSICOP and the SKEPTICAL INQUIRER are eleven years old this year. Thanks to your subscriptions and contributions from supporters, we provide a much-needed skeptical voice in the midst of a cacophony of sensationalized and credulous reports of old and new paranormal claims. We sponsor conferences, have greatly expanded our outreach to the news media, increased our support for the investigation of paranormal claims, and are fielding an increasing flow of inquiries from the media and the general public. The SKEPTICAL INQUIRER is the *only* magazine of its kind; we think it does an essential job.

We are establishing a definitive library/archive/database on paranormal claims, actively cooperate with many other organizations, and provide speakers for public meetings and interviewees for the mass media. We must upgrade our information resources and our ability to disseminate this information if we are to achieve CSICOP's potential for constructive influence on public thought and scientific research.

We will be very grateful for your tax-deductible contribution, large or small. The Endowment Fund will guarantee our future.

Paul Kurtz, *Chairman*

Executive Council: James Alcock, Kendrick Frazier, Martin Gardner, Ray Hyman, Philip J. Klass, Lee Nisbet, Mark Plummer, James Randi

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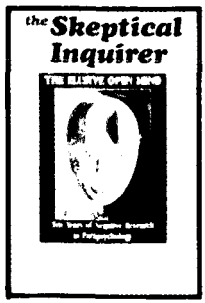

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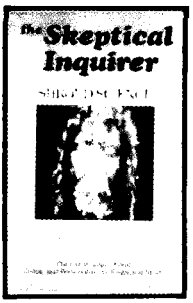

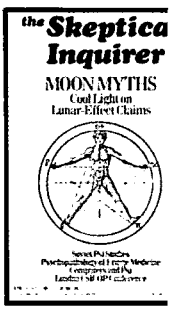

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From Our Readers

The letters column is a forum for views on matters raised in previous issues. Letters are more likely to be published if they are brief and typed double-spaced. They may be edited for space and clarity.

The elusive open mind

Susan Blackmore's article "The Elusive Open Mind" (Spring 1987) is perhaps the most important piece the SKEPTICAL INQUIRER has ever printed. Dr. Blackmore directly and dispassionately confronts the central problem concerning the paranormal. This is the "cognitive dissonance" one must endure when confronting two bodies of evidence that conflict. It is easy to find a comfortable position on one side or the other, but to do so involves disregarding significant amounts of data pointing the other way.

Dr. Blackmore bolsters the skeptic's case by her candid account of her long, unsuccessful search for evidence of the paranormal. She describes the impossibility of maintaining true impartiality. It seems that the human mind is so constituted that on important questions, overtly or covertly, we must take one side or the other.

For those of us who—while admitting the strong case for the unreality of "psi" built up by Blackmore, Kurtz, and many others—still tend to lean a bit in the other direction, we have on our side a body of evidence impressive though not conclusive. There is a long record of poltergeist and crisis apparition phenomena, the nonscientific but not inconsequential studies of Gilbert Murray, Upton Sinclair, Hamlin Garland, and S. E. White, as well as the more recent scientific work of investigators like Helmut Schmidt, Robert Jahn, Charles Honorton, and others.

Dr. Blackmore asks, "Does 'psi' exist?" and then continues: "The question, I submit, is unanswerable." She has the profundity to recognize that Aristotelian logic apparently does not apply to all reality. Modern physics presents us with such paradoxes as light existing at the same time as both waves and particles. Have we reached the limit of human comprehension? Can psi perhaps be and not be at the same time?

In any event, it is a pleasure to read an article in *SI* that is dispassionate and not loaded with ridicule. Probably no one who reads the SKEPTICAL INQUIRER takes seriously the mindless prattle of "true believers" about "vibes" or "higher dimensions." Let us have more measured criticism of serious research, always remembering the humility of most great scientists—such as Max Planck, who wrote, "Science cannot solve the ultimate mystery of nature."

George R. Ellis
Inglewood, Calif.

The logic Susan Blackmore uses to categorize her work on out-of-body experiences (OBEs) and her work on psi as two qualitatively different types of research—the former being fruitful and the latter dealing with intrinsically unanswerable questions—is quite baffling. Why is it that attributing positive psi results to fraud and improper controls is any different from attributing OBEs to properties of the perceptual system? Both

the fraud/controls explanation of psi and the perceptual-system explanation of OBEs are infinitely more compatible with the facts than any extraordinary hypothesis involving mystical energies or astral dimensions. Isn't it reasonable to conclude, based on an open-minded evaluation of the facts, that, although people have both psi and OB experiences, neither psi nor astral projection exists as an objective entity?

Perhaps Blackmore's acceptance of the logically invalid "You can't prove a negative" axiom has something to do with her puzzling conclusions. She maintains that "no amount of negative results can prove the nonexistence of psi." Nonsense! If *properly controlled* experimentation consistently yields results that are contradictory to what psi theory predicts and is supportive of what a more parsimonious, naturalistic theory predicts, then psi theory has been effectively disproved. Of course someone can always come along and make up post-hoc relationships for why a psi experiment yielded negative results, but any self-respecting group of pseudoscientists could also come up with 101 post-hoc explanations for why an OBE looks like a perceptual phenomenon.

I can only conclude that the difference Blackmore sees in her two lines of research is as illusory as the phenomena she investigates.

Jack McDonald
Department of Psychology
State Univ. of New York
Stony Brook, N.Y.

I had just returned from a trip to Tibet when I read Susan Blackmore's article. Her comments on OBEs prompt the following story.

In Tibet I was told by some American Buddhists that, although they had not witnessed "levitation," they knew people who had had the experience after deep meditation. Another American in the same group, an athletic non-Buddhist businessman, then told me about his experiences with levitation. He was finishing a hard day of trekking in Nepal when he suddenly felt that he was floating, not walking. He looked down at his feet and saw them moving, but when he raised his eyes he had the very real sensation of being free from his legs. Later, he related this phenomenon to a medical doctor at a high-altitude clinic in Nepal. Such things often happen to trekkers, the doctor said. The phenomenon is no doubt the same as the marathon runner's high, which is caused by endorphins, natural opiates or hallucinogens produced by the brain when the body and mind are under stress of some sort.

Could it be that Susan Blackmore's OBE, the Buddhists' levitation, and the businessman's "levitation" are all products of endorphins? It's worth thinking about.

Mary Folsom
Boulder, Colo.

The story of Susan Blackmore's struggles through ten years of searching for the existence of psi power and her failure to find any evidence for it was intriguing.

No doubt skeptical open-mindedness is exactly what your organization stands for, but there comes a time in all scientific endeavors when the preponderance of evidence becomes so convincing that we must consider the issue to be essentially closed and get on with other things. Certainly to spend any considerable time, effort, and funding on these issues becomes counterproductive.

Dr. Blackmore's ten-year effort should be applauded, and her negative results should by now have convinced her that the question of the existence of psi power does have a right answer. It does not exist.

William Rosenzweig, M.D.
Hillsborough, Calif.

Susan Blackmore is, I think, onto something that will go a long way toward explaining at least a large part of the more interesting experiences offered by traditional occult disciplines. Most such systems stress the development of visual-

ization and rely heavily upon mild sensory deprivation (meditation, magical retirements) or alteration (drugs, scourging) in the production of OBEs, visions, conjuration, and so on. Proper training (memorization) in the correct occult symbolism could result in visions with common elements, thus giving the impression of objective reality.

The same could hold true for UFO "contactee" experiences as well, although one should ask where the common symbols come from. Many contactees tend to be creative types. Witness the amazing proliferation of books, painting, and music that accompanies the phenomenon and seems to be an integral part of it.

I am fascinated by the concept of "the cognitive system losing input control" and encourage Dr. Blackmore to explore the mechanism by which it operates. When one's perception of reality is dependent on sensory input, and a radical source change takes place without the person's being aware of it, we can easily see how people who have undergone such experiences believe them to be literally true.

John Blocher
Tucson, Ariz.

Problems of metascience

I wonder how many readers tripped over the large pothole in the middle of Dorion Sagan's problematic "Magic, Science, and Metascience: Some Notes on Perception" (*SI*, Spring 1987).

I'm referring to the extraordinary statement: ". . . The idea that spirochetes cause syphilis, like the idea that worms cause dead men, can itself be labeled superstitious." Sagan asserts that there is no reason to believe that the association between Treponema pallidum and syphilis is more than "just another correlation." Anyone minimally literate in infectious diseases knows that the penetration of the skin or mucosa of a susceptible human host by viable *T. pallidum* spirochetes is necessary and sufficient to cause syphilis; and, further, that treatment of an infected person with an appropriate antibiotic invariably results in cure. The conclusion is either that Mr. Sagan lacks this minimal literacy (his citation of the long-obsolete Wasserman test as "today's" diagnostic test for syphilis would support this) or that he is using the word *cause* in a novel sense that he fails to define.

Sagan's thesis, that scientific thinking is not essentially different from superstitious thinking, is on the face of it an extreme position contrary to CSICOP's stated aim of encouraging critical investigation from a responsible, scientific point of view. The article is a tissue of grandiloquent and unsupported generalizations ("Magicians recognize that scientists are among the easiest to fool" and ". . . All perception is participatory—determined by what the spectator . . . is looking for"), extreme statements left hanging without explanation (the syphilis example above), and tortuous pseudo-profundities ("Science evolved beyond shamanism not because its associational tendency differs in kind from superstition but because language has amplified the available data to be correlated by the basic Occam's Razor style of human thought to massive numbers.").

The caveat that humans are easily fooled into hasty and erroneous generalizations and that such a tendency may be built into our perceptual apparatus is indeed healthy for scientists (or anyone) to keep in mind. To blithely stretch this point to deny the difference between true ("spirochetes cause syphilis") and false ("worms cause dead men") statements is absurd.

The question of whether it is possible to logically defend an extreme philosophical skepticism is a deep, fascinating, and unresolved area of study (read Arne Naess). To state, as Sagan does, that "knowledge is not absolute" is easy and tempting. To prove it is difficult and has in fact never been done to the satisfaction of most students of the theory of knowledge. Let us humble, garden-variety skeptics keep open minds on big questions (and on small questions outside our areas of expertise), lest we look foolish.

Stanley D. Polanski
Franklin, N.C.

Astrology criticism

Geoffrey Dean's two-part article "Does Astrology Need to Be True?" (*SI*, Winter 1986-87 and Spring 1987) shows such awesome scholarship into what most of us would consider an area unlikely to be fruitful that it's hard to criticize it. Yet I feel I must, in two details, though recognizing the value of all the rest he's done.

He seems to imply that skeptics should not criticize any brand of astrology other than what he calls "serious," a term he never really defines but that apparently excludes things like daily newspaper horoscopes. It seems to me that our *greatest* duty should be to criticize such things, since they are the versions of astrology that are by far the most widespread and most widely believed in.

And he seems to imply that it's okay if an astrologer gives advice that helps a client, whether or not the astrologer has any genuine expertise. Ray Hyman answered that one, in what I consider the most important article you ever published, way back when you were still the *Zetetic* (Spring/Summer 1977): The astrologer, to stay in business, should *not* tell the truth, but rather should say *whatever the client wants to hear.*

Jim Loudon
Staff Astronomer
University of Michigan
Exhibit Museum
Ann Arbor, Mich.

Odishaw and the Condon Report

I have read with interest Philip Klass's article (*SI*, Summer 1986) on the troubled University of Colorado UFO Project (1966-68), funded by the U.S. Air Force and directed by the late physicist Edward Condon, which concluded that UFOs did not merit further scientific attention, and the subsequent exchange between Klass and Ron Westrum (*SI*, Winter 1986-87).

One point of debate between Klass and Westrum is the "clean bill of health" given the Colorado report by a special panel set up by the National Academy of Sciences (NAS), which endorsed the project's scope, methodology, and conclusions. I can now shed some light on that aspect of the Colorado Project that has not appeared in print before. This information came to me through personal acquaintance with the late geophysicist Hugh Odishaw, Condon's long-time confidant and friend, who served as secretary of the Division of Physical Sciences at NAS during the Colorado Project.

Odishaw was dean of the College of Earth Sciences at the University of Arizona during the 1970s, and I was thus in contact with him more or less on a weekly basis for several years. At one point—I don't remember the exact date, but I believe it was sometime in 1977—I had lunch with Odishaw and asked him about his recollections of the Colorado Project. I knew that he had been Condon's assistant when the latter was Director of the National Bureau of Standards between the end of the war and 1951. He was there to help Condon with vast paper work when he came under attack by Senator McCarthy's House Un-American Activities Committee in the early 1950s —losing his needed security clearance twice—and by then Congressman Richard Nixon. Odishaw, a well-known scientist in his own right, later played a key role in the development of the International Geophysical Year (1957-58) and was the author of many important geophysical texts; thus his appointment to NAS. I suspected that, because of his close personal relationship with Condon, Odishaw might reveal interesting new information on the Colorado Project, and this he willingly did.

As it turned out, Odishaw had closely followed the Project through its evolution. Condon informed Odishaw of all major events as they happened, and when the problems with University of Arizona atmospheric physicist James McDonald intensified, and when the Project's internal disputes occurred, Condon was often on the phone to Odishaw to seek both his solace and advice. Condon's many trips to Washington during the time of the Project also included personal visits to Odishaw at NAS to discuss the study's progress and problems, and to get advice.

Thus, when the report neared comple-

tion, Odishaw was already intimately—but unofficially—aware of the Project's status and results, or at least as these were perceived by Condon, the director. So, when the Air Force officially sent the new report to NAS President Frederick Seitz, a former student of Condon, Odishaw was ready. He was the one who, working behind the scenes, organized the review panel, selecting its members and providing them with background information and materials. (The NAS panel was allocated two weeks to examine the 1,465-page Colorado report, followed by two meetings in Washington, on December 2, 1968, and January 6, 1969.)

Naturally, Odishaw selected individuals who he thought would endorse the report's negative UFO findings. He did not look upon this as any sort of "conspiracy." Based on our conversation, I think he honestly viewed it more as his duty to science, as well as his loyalty to an old friend. Odishaw also had some uncomplimentary things to say about James McDonald, and even Allen Hynek, but they are irrelevant to this historical footnote. I urged Odishaw to publish these recollections in more detail, perhaps in his memoirs. He said it was a good idea but would have to wait until retirement, as he was too busy at the time.

I myself did not want to publish this information, given to me in confidence, as I felt it was not my place to do so, at least while Odishaw lived. I feel that his death permits me to do so now.

I do not believe that Odishaw's name appears anywhere in the Colorado Project report or in the NAS review panel report, but he quietly had a significant influence on the outcome of both. While the NAS endorsement may have looked like part of a larger "whitewash" or "conspiracy" to outsiders, based on what Odishaw told me, I think he and Condon perceived such actions as following the normal way of "getting things done" through social networking. I am sure that neither saw anything unethical in what they did, but perceived themselves as defenders of rationality and science.

J. Richard Greenwell
Tucson, Arizona

Kendrick Frazier comments:

Your editor confesses a more than usual interest in Richard Greenwell's insightful letter. I myself was a member of the staff of the National Academy of Sciences from 1966-1969. I knew Odishaw slightly and admired him greatly. The Academy panel's "Review of the University of Colorado Report on Unidentified Flying Objects" was published exclusively and in full, and bearing an unprecedented copyright notice, in the NAS-NRC News Report *(February 1969, pp. 6-8), of which I was editor. (The Academy declined Bantam Books' request to publish the NAS review in the Bantam mass-market paperback publication of the Condon report.) Because Odishaw is no longer alive to give his comments about Mr. Greenwell's recollections, I consulted with former long-time NAS Information Director Howard J. Lewis, who knew Odishaw well, and he in turn discussed the matter with a former top official of the Academy from that period. Both found Greenwell's letter quite interesting and thoughtful. They disagreed, however, with the implication that Odishaw stacked the committee. They point out that to do so would have risked embarrassing Condon; furthermore, Odishaw didn't have paramount authority in selecting the membership of the committee and everyone in positions of authority at the Academy knew how sensitive the subject was. It is indeed too bad Odishaw did not publish his recollections about this controversy and the many important scientific projects in which he participated.*

Wormwood connection

The "wormwood connection" is not quite as silly as your correspondent Maurice Ogden suggests (*SI*, Winter 1986/87). The *cherno-* in Chernobyl does indeed mean "black"; however, the *-byl* does not mean "place," but is a common Slavic root referring to grass or small plants. The whole, *chernobyl*, is a fairly rare word, but the larger Russian dictionaries clearly define it as a plant of the wormwood family (genus Artemisia), for which the

general common word is *polyn'*. There is a similar word in Ukrainian, but I have not been able to confirm whether it refers to the same plant.

While I'm writing, I think the piece on astrology by Geoffrey Dean (Part I, at least) is one of the best things you've ever published, and I've been reading *SI* since issue No. 1.

Ross Clark
Anthropology Department
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New Zealand

Apocalyptic crackpottery

As we continue the countdown to the anticipated bimillennial crackpot hurricane, with all its easily predictable "end of the world" craziness, there may be some useful public relations tactics that can be employed to discourage some of the wilder public pronouncements.

In a radio encounter with Ruth Montgomery last year, Andrew Skolnick and I effectively used a gimmick against the self-styled psychic's predictions of apocalyptic events before January 1, 2001. We suggested she bequeath or will all her earthly possessions to CSICOP, effective January 2, 2001; or, failing that, we offered to buy now an option to purchase all her remaining earthly posessions on that date for $10 down and $10 on that date. Flustered and confused, she declined, making awkward comments on not wanting to benefit any arch-skeptical group like CSICOP. The audience tittered at her discomfort. All in all, it was an extremely effective demonstration that she herself had no confidence in her own predictions.

Legal experts among CSICOP subscribers may be able to draft binding contracts that can be presented to each and every such end-of-the-worlder who ventures into the public forum, agreements that promise for some present consideration the transfer of all the spokesman's worldly goods to either CSICOP or an interested individual or his/her estate. Some may even sign it, providing CSICOP with financial support at a time that I predict will be experiencing a mass mania of crackpottery. Those who don't will be discredited in public, which may be even more valuable.

I also suggest the organization of a CSICOP special-interest group on bimillennial apocalypsism, concerned with fundamentalist pole-flipper, alien-invasion, and assorted similar schools of pseudothought. Interested parties may write to me, and although I don't want to be the permanent chairman I'll take the lead in getting something organized.

Jim Oberg
Route 2, Box 350
Dickinson, TX 77539

Do subjects know themselves?

"If subjects do not know themselves, then valid personality questionnaires could not exist," writes Geoffrey Dean (*SI*, Winter 1986-87, p. 180). Well, yes and no! There are different ways to know ourselves. Item by item, question by question, we can know ourselves well enough, but the total picture can be a fiction.

In the experience of Shawn Carlson ("A Double-blind Test of Astrology, *Nature*, 318 [1985]: 419-423; see also *SI*, Spring 1986), each subject had to select his own real personality from three profiles. By chance, the subjects could get a 33-percent success rate; they got 43 percent, a correlation phi of only 0.15.

Françoise Berthiaume and I presented six personality scores to each of our subjects. Four were true, two were faked (plus or minus 50 centile ranks). The correlation between their agreement with the scores and the accuracy of the scores was only 0.14. Our study ("The Acceptance of the Results of a Personality Test") was presented to the congress of the Quebec Society of Research in Psychology in November 1986. We can send a copy of our paper to anyone interested.

Philippe Thiriart
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Canada

Crookes's unreliability

My friend John Beloff ("Martin Gardner and Daniel Home," *SI,* Winter 1986-87) is impressed by the testimony of William Crookes, "who, in due course, attained, successively, a knighthood, an Order of Merit, and the Presidency of the Royal Society." So was I until I became a student of the works of Trevor Hall, which curiously neither Beloff nor Gardner appear to have noticed.

The first findings of Hall's researches into "The Story of Florence Cook and William Crookes" were published in Hall's *The Spiritualists* (London: Duckworth, 1962), published by Prometheus Books as *The Medium and the Scientist* in 1984; and these were later supplemented by the chapter "Florence Cook and William Crookes" in Hall's *New Light on Old Ghosts* (Duckworth, 1965). To my mind these works demonstrate decisively that, at least in spiritualist matters, the testimony of Crookes was worthless: that, in a word, Crookes was a crook and the medium was his mistress.

This does not of course prove that Crookes was equally unreliable in his tributes to Home, with whom he was—presumably—not sexually involved. But Hall has also contributed to resolving *The Enigma of Daniel Home* (Buffalo, N.Y.: Prometheus, 1984). And Beloff should surely give more weight to his own observation that "physical mediums . . . are an extinct species," and to the suggestion of others that this extinction was consequent upon the development of infrared photography.

Antony Flew
Reading, England

Gallup Poll's error margin

The article "New Gallup Youth Poll Finds Decline in Supernatural Belief" (*SI,* Spring 1987) was rather misleading. Since the survey involved only 504 respondents, the margin of error would be *at least* ± 5 percent, with those of subcategories being even greater. Given this fact, the only category exhibiting a decline in supernatural belief from 1984 to 1986 is ESP.

On the other hand, the decline from 1978 to 1987 occurred re Astrology, ESP, Bigfoot, and Loch Ness.

John George
Dept. of Political Science
Central State University
Edmond, Okla.

Fear of death

What sort of statement—of fact, psychology, or philosophy—can CSICOP make to assuage that ultimate terror of reality, the fear of death? This fear is the (usually unstated) reason that millions of people cling to their absurd beliefs in the metaphysical, the paranormal, and the supernatural. Ignorance and stupidity are not the real enemies of reason—they are only the symptoms. The enemy is the conscious or suppressed fear of losing life.

Milton Gray
La Jolla, Calif.

Stars for fun

Lawrence Cranberg's suggestions regarding the CSICOP astrology disclaimer strike me as naive (*SI,* Letters, Winter 1986-87). Mr. Frazier rightly responds that most editors don't care a damn about horoscopes—they simply see themselves as catering to another one of their readers' silly interests. Moreover, journalists like to view themselves as a fiercely independent lot, and it's sheer fantasy to imagine that one might persuade some hardened, chain-smoking city editor to kill an astrology column by taking him to visit a local observatory. As for a letter-writing campaign, it would just be proof to the editor that skeptics are as cranky as astrologers.

In New Zealand, we have had what must be on a population basis the best response in the world so far in modifying astrology columns—but it didn't happen the way we planned. Asked by us to carry the disclaimer, one newspaper did agree to accompany each column with a caveat

that said simply: "For entertainment." But two other major dailies had an even more interesting response: While refusing to use the disclaimer, they retitled their astrology columns "Stars for Fun." This has had the permanent effect of making sure that most readers—especially young people—don't take the horoscopes seriously.

The New Zealand Skeptics take some pride in this small victory—and in retrospect we have to admit that the original CSICOP disclaimer, while certainly noble in conception, was perhaps too long-winded and solemn for us to expect it to be widely adopted. As one journalist put it to me, having wasted space for the horoscope he wasn't about to waste more on a daily lecture denouncing it.

Denis Dutton, Chairman
New Zealand Skeptics
University of Canterbury
Christchurch, N.Z.

A Reminder . . .

All *subscription* correspondence (new subscriptions, renewals, back-issue orders, billing problems) should be addressed to:

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Queensland, 18 Noreen Street, Chapel Hill, Queensland, 4069.

South Australia, P.O. Box 91, Magill, S.A., 5072.

Victoria, P.O. Box 1555P, Melbourne, Vic., 3001.

West Australia, 25 Headingly Road, Kalamunda, W.A., 6076.

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FRANCE

Comité Français pour l'Etude des Phénomènes Paranormaux, Maurice Gross and Yves Galifret, 16 Rue de l'Ecole Polytechnique, Paris 5.

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Michael J. Hutchinson, Secretary, UK Skeptics, 10 Crescent View, Loughton, Essex 1G10 4PZ.

HOLLAND

Prof. P. Wouters, Convenor, ISUW Dodeweg 8, 3832 RD Leusden.

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Southern California Skeptics, Ron Crowley, Chairman, P.O. Box 5523, Pasadena, CA 91107.

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Florida Skeptics, Humberto Ruiz, 10753 S.W. 104th Street, Miami, FL 33176.

Hawaii

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Massachusetts and New England

Skeptical Inquirers of New England (SINE), David Smith, Chairman, Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138.

Michigan

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MSU Proponents of Rational Inquiry and the Scientific Method (PRISM), Dave Marks, 221 Agriculture Hall, Michigan State Univ., East Lansing, MI 48824.

Minnesota

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Houston Association for Scientific Thinking (HAST), Steven Schafersman and Darrell Kachilla, P.O. Box 541314, Houston, TX 77254.

North Texas Skeptics, Ron Hastings, Chairman, P.O. Box 815845, Dallas, TX 75381-5845.

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